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ABSTRACT

Provided are appendices which contain supporting documentation related to an external evaluation of the Phase 2: Energy Conservation Field Projects. Objectives of this program were to: test the generalizability of the energy conservations measures outlined in "Guidelines for Conserving Energy in Alberta Schools" and augment these guidelines as required, develop standards of energy consumption for Alberta schools by school type and size, and on the basis of climate; and provide lighthouse projects readily accessible by personnel from surrounding jurisdictions. Material contained in the appendices includes: energy conservation retrofitting by school and zone; district energy conserving policies; curriculum activities outline; Rocky View energy conservation week activities and principal/teacher comments; energy consultants' workshop materials; interview questionnaire for senior school board administrators and school officials; comments expressed during interviews with senior school board administrators and school officials; building quality restoration program energy conservation projects questionnaire; bibliography; and list of individuals contacted during the evaluation. (JN)

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ENERGY CONSERVATION FIELD PROJECTS
PHASE 2: EXTERNAL EVALUATION
DOCUMENT II: APPENDICES

STANLEY ASSOCIATES ENGINEERING LTD.

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OCTOBER, 1982

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APPENDIX "A"

ENERGY CONSERVATION RETROFITTINGS BY SCHOOL AND ZONE

Source: Alberta Education
A.1

Latest

ZONE 1

PEACE RIVER SCHOOL DIVISION NO. 10

ST. THOMAS MORE RCSSD NO. 35

RETROFIT	KENNEDY		BROWNVALE		LLOYD GARRISON		GRIMSHAW				ST. THOMAS MORE	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	4111	1028	606	151	2927	732	5212	1303			3767	942
TIME CLOCK SHUTDOWN	472	118	240	60	1382	345	776	194				1504
DAMPER MODIFICATION	1352	338	684	171	199	50	471	118			802	200
CONTROLS UPGRADING												4212
BOILER TEMP. RESET												130
HEATING PUMP CONTROL												810
ZONE VALVE UPGRADE												
FURNACE REPLACEMENT											2700	2050
COMPRESSOR UPGRADE							273	68				
WINDOW REPLACEMENT												
WINDOW BLOCKING												4719
ATTIC INSULATION					8079	2020	9718	2429		1170		
CRAWL SPACE INSULATION										attic vents		
VESTIBULE DOORS												
PIPE/DUCT INSULATION												1400
WEATHERSTRIPPING												47
HUMIDIFICATION		4500										
URINAL FLUSH CONTROL	495	124			1043	261	610	152			880	220
SHOWER HEADS											168	42
CEILING FANS											471	118
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												187
INCANDESCENT REPLACEMENT											2512	2059
H. P. SODIUM LIGHTING												
PARKING PLUG CYCLE												
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS	391	98	391	98	391	98	391	98				875
BOILER TUNEUP												
MOTIVATION MATERIAL												
CURRICULUM MATERIAL										3200		85
OFFICE SUPPLIES										4268	(redress pa	
TOTALS	6821	6206	1921	480	14021	3505	17451	4362		8638	11300	19600

PEACE RIVER SCHOOL DIVISION #10
TOTAL BQRP = 40,214
TOTAL PROJECT = 23,192

ST. THOMAS MORE RCSSD NO. 35
TOTAL BQRP = 11,300
TOTAL PROJECT = 19,600

ZONE 1

FAIRVIEW SCHOOL DIVISION NO. 50

RETROFIT	HINES CREEK		GRACE SHEPHERD		WHITELAW		E.E.OLIVER		McAULEY		FAIRVIEW HIGH	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	1000	250	1458	365	479	120	1519	2369	742	158	869	92
TIME CLOCK SHUTDOWN	264	66	238	58	120	30					206	52
DAMPER MODIFICATION					629	157					309	77
CONTROLS UPGRADING					254	114		270		58		467
BOILER TEMP. RESET							1406	351				
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE												
FURNACE REPLACEMENT	9677	7259									11976	11627
COMPRESSOR UPGRADE							287	336				
WINDOW REPLACEMENT												
WINDOW BLOCKING	80000	20000										
ATTIC INSULATION		5190	5423	1356	3618	854						
CRAWL SPACE INSULATION							310	78				
VESTIBULE DOORS			1000	250					680	170		
PIPE/DUCT INSULATION												
WEATHERSTRIPPING					69	17						37
URINAL FLUSH CONTROL							412	103	123	57	412	103
SHOWER HEADS											168	280
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE												
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS												
BOILER TUNEUP												
MOTIVATION MATERIAL												
CURRICULUM MATERIAL										475		
OFFICE SUPPLIES										696		
TOTALS	90941	32765	8119	2029	5169	1292	3934	3722	1545	1914	13940	12735

FAIRVIEW SCHOOL DIVISION NO. 50
TOTAL BQRP = 123,648
TOTAL PROJECT = 54,457

ZONE 2

LAKELAND PUBLIC SCHOOL DISTRICT NO. 5460

RETROFIT	ARDMORE		COLD LAKE		DUCLOS		FORT KENT		GLENDON		GRAND CENTRE ELEMENTARY	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS			1320	330	4920	1230						
TIME CLOCK SHUTDOWN												
DAMPER MODIFICATION												
CONTROLS UPGRADING	3023	756	1408	352	3900	975	4537	1134	9420	2536	2640	660
BOILER TEMP. RESET			704	176			1468	292	1468	292		
HEATING PUMP CONTROL			528	132			1056	264	1056	264		
ZONE VALVE UPGRADE							1320	330	2200	500		
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE							924	231	924	231		
WINDOW REPLACEMENT												
WINDOW BLOCKING												
ATTIC INSULATION					5310	1327						
CRAWL SPACE INSULATION												
VESTIBULE DOORS												
PIPE/DUCT INSULATION	19	5			5	2	41	10	34	9	46	12
WEATHERSTRIPPING												
URINAL FLUSH CONTROL	281	71			563	141			563	141	281	71
SHOWER HEADS			116	29	145	36	173	44	160	39		
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT	449	112	6528	717	735	248	1183	408	2372	593	779	416
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE	1645	412	1663	416	1654	414	1663	416	3526	544	1663	416
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS		500		500		500		500		500		500
BOILER TUNEUP		472		214				259		259		1000
MOTIVATION MATERIAL												
CURRICULUM MATERIAL												
OFFICE SUPPLIES												
TOTALS	5417	2328	12267	2866	17232	4873	12365	3888	21723	5908	5409	3075

LAKELAND PUBLIC SCHOOL DISTRICT NO. 5460
TOTAL BQRP = 123,392
TOTAL PROJECT = 86,908

ZONE 2

Latest

LAKELAND PUBLIC SCHOOL DISTRICT NO. 5460

LAKELAND ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 150

RETROFIT	GRAND CENTRE JUNIOR		SENIOR		IRON RIVER				NOTRE DAME ELEMENTARY		NOTRE DAME JUNIOR HIGH	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	3672	941			3800	950			3872	3068	4312	2578
TIME CLOCK SHUTDOWN												2000
DAMPER MODIFICATION												
CONTROLS UPGRADING	3168	792	10854	19296	2400	600			6072	1518	3784	946
BOILER TEMP. RESET												
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE												
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT												
WINDOW BLOCKING									4292	1073	7586	1897
ATTIC INSULATION					5310	1327						3600
CRAWL SPACE INSULATION												
VESTIBULE DOORS												
PIPE/DUCT INSULATION	82	21	30	7	57	15			5	1		
WEATHERSTRIPPING												
URINAL FLUSH CONTROL		..	844	212					845	212	281	71
SHOWER HEADS	116	29	173	44							116	29
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT	2993	945			2204	551						
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE			1751	438	1645	412						
LOAD SHEDDER			9880	35890								
START TIME OPTIMIZER												
INFRARED SCANS		500		500		500				500		500
BOILER TUNEUP												
MOTIVATION MATERIAL								450				
CURRICULUM MATERIAL								1060		750		250
OFFICE SUPPLIES												
TOTALS	10031	3228	23532	56387	15416	4355		1510	15086	7122	16079	11871

LAKELAND ROMAN CATHOLIC
SEPARATE SCHOOL DISTRICT NO. 150
TOTAL BORP = 31,165
TOTAL PROJECT = 18,993

ZONE 3

latest

EDMONTON ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 7

RETROFIT	AUSTIN O'BRIEN		ST. ANDREWS		ST. CLARE		ST. BONIFACE		ST. AUGUSTINE		ST. DOMINIC	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	19592	6978	400	100	400	100	800	200	800	4700	300	6200
TIME CLOCK SHUTDOWN												
DAMPER MODIFICATION												
CONTROLS UPGRADING				480		1200		920				
BOILER TEMP. RESET												
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE				625		6875						
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT												
WINDOW BLOCKING												
ATTIC INSULATION												
CRAWL SPACE INSULATION												
VESTIBULE DOORS												
PIPE/DUCT INSULATION												
WEATHERSTRIPPING												
URINAL FLUSH CONTROL	1200	300	800	200	1200	300	1200	300			1200	300
SHOWER HEADS		200						180				130
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE	2800	700	2000	500	2000	500	2000	500	2000	500	2000	500
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS		500		500		500		400		500		500
BOILER TUNEUP		1280		800		1600		1800		1280		1100
MOTIVATION MATERIAL		100		100		100		100		100		100
CURRICULUM MATERIAL												
OFFICE SUPPLIES												
TOTALS	23592	10058	3200	3305	3600	11175	4000	4400	2800	7080	3500	8830

EDMONTON ROMAN CATHOLIC
SEPARATE SCHOOL DISTRICT NO. 7
TOTAL BORP = 55,532
TOTAL PROJECT = 107,298

ZONE 3

Latest

EDMONTON ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 7

RETROFIT	ST. ALPHONSUS		ST. BASIL		FATHER LACOMBE		ST. AGNES					
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	800	200	800	200		19000	400	100				
TIME CLOCK SHUTDOWN												
DAMPER MODIFICATION												
CONTROLS UPGRADING		1850		1890								
BOILER TEMP. RESET												
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE				14375				1375				
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT												
WINDOW BLOCKING												
ATTIC INSULATION												
CRAWL SPACE INSULATION												
VESTIBULE DOORS												
PIPE/DUCT INSULATION												
WEATHERSTRIPPING												
URINAL FLUSH CONTROL	1000	200	1200	300	1200	300	1200	300				
SHOWER HEADS		150				270		180				
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE	2240	560	2000	500	2000	500	2000	500				
LOAD SHEDDER		7000		6250								
START TIME OPTIMIZER												
INFRARED SCANS		500		500		400		500				
BOILER TUNEUP		950		1050		1050		1100				
MOTIVATION MATERIAL		100		100		100		100				
CURRICULUM MATERIAL												
OFFICE SUPPLIES												
TOTALS	4040	11510	4000	25165	3200	21620	3600	4155				

ZONE 4

ROCKY VIEW SCHOOL DIVISION NO. 41

RETROFIT	ANDREW SIBBALD		BEISEKER		CHESTERMERE		COCHRANE		CONRICH		SPRINGBANK JUNIOR HIGH	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	4000	2061	4800	1200	4800	1200	4000	2500	2400	600	4400	2200
TIME CLOCK SHUTDOWN	280	80					1200	300		100	400	65
DAMPER MODIFICATION								2300			1178	300
CONTROLS UPGRADING			1175	300			1200	300	2018	1358		
BOILER TEMP. RESET	800	1600					720	180				
HEATING PUMP CONTROL	800	200			1115	279	736	186				6299
ZONE VALVE UPGRADE												
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT									29705	29353		
WINDOW BLOCKING										+5800		
ATTIC INSULATION										(local)		
CRAWL SPACE INSULATION												
VESTIBULE DOORS		15000										
PIPE/DUCT INSULATION												
WEATHERSTRIPPING												
URINAL FLUSH CONTROL												
SHOWER HEADS												
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT												
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE												
LOAD SHEDDER												
START TIME OPTIMIZER			1000	244								
WATER TREATMENT										188		
INFRARED SCANS								500				500
BOILER TUNEUP		257		129		418		129		193		322
MOTIVATION MATERIAL												
CURRICULUM MATERIAL												
OFFICE SUPPLIES												
TOTALS	5880	19198	6975	1873	5915	1897	7856	6395	34123	31792	5978	9686

ROCKY VIEW SCHOOL DIVISION NO. 41
TOTAL BQRP = $ 105 502
TOTAL PROJECT = $ 112 290
TOTAL LOCAL = $ 5 800

ROCKY VIEW SCHOOL DIVISION NO. 41

Latest

RETROFIT	EDWARDS		VALLEY		BARRETT		McDOUGALL		COMM. HIGH			
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS			4400	1063	1200		3200	1167				
TIME CLOCK SHUTDOWN	1000	500	790	500	800	200	800	200	800	200		
DAMPER MODIFICATION												
CONTROLS UPGRADING												
BOILER TEMP. RESET					3170	1092			800	3000		
HEATING PUMP CONTROL			1000	300	800	200	133	100	1600	800		
ZONE VALVE UPGRADE												
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT												
WINDOW BLOCKING												
ATTIC INSULATION												
CRAWL SPACE INSULATION												
VESTIBULE DOORS												
PIPE/DUCT INSULATION												
WEATHERSTRIPPING												
URINAL FLUSH CONTROL												
SHOWER HEADS												
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT		720				1314				3241		
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING										5468		
PARKING PLUG CYCLE												
LOAD SHEDDER									10240	7883		
START TIME OPTIMIZER	6042	1261	2000	500								
WATER TREATMENT				575								
INFRARED SCANS		500		500		500		500		500		
BOILER TUNEUP		257		161		64		32		129		
MOTIVATION MATERIAL												582
CURRICULUM MATERIAL												1127
OFFICE SUPPLIES												6313
TOTALS	7042	3238	8190	3599	5970	3370	4133	1999	13440	21221		8022

ZONE 5

MEDICINE HAT PUBLIC SCHOOL DISTRICT NO. 76

RETROFIT	ALEXANDRA		CONNAUGHT		CRESCENT HEIGHTS		CRESTWOOD		ELM STREET		HERALD	
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOS TS	7318	1830	6062	5000	22224	5556	8036	2009	5802	1696	8532	2133
TIME CLOCK SHUTDOWN												
DAMPER MODIFICATION		2300				21900		2600				
CONTROLS UPGRADING		900		700		3029		1400				1395
BOILER TEMP. RESET												
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE				1470				1090				
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT									1823	456		
WINDOW BLOCKING												
ATTIC INSULATION			3929	982					3623	906		
CRAWL SPACE INSULATIC												
VESTIBULE DOORS												
PIPE/DUCT INSULATION					532	2043		2116				
WEATHERSTRIPPING		100		100		100		100		100		100
URINAL FLUSH CONTROL												
SHOWER HEADS		317				485		148				
CEILING FANS												
LIGHT SWITCHING										208		
FLUORESCENT REPLACEME		2010		713		3953		1604		650		1042
INCANDESCENT REPLACEM IT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE		2738		1596		1677		1649		1440		1440
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS												
BOILER TUNEUP												
MOTIVATION MATERIAL												
CURRICULUM MATERIAL												
OFFICE SUPPLIES												
TOTALS	7318	10195	9991	10561	22756	38743	8036	12716	11248	5456	8532	6110

MEDICINE HAT PUBLIC SCHOOL DISTRICT NO. 76
TOTAL BQRP = 93,044
TOTAL PROJECT = 115,217

ZONE 5

MEDICINE HAT PUBLIC SCHOOL DISTPICT NO. 76

Latest

RETROFIT	MONTREAL STREET		RIVER HEIGHTS		VINCENT MASSEY		WEBSTER NIBLOCK					
	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ	BQRP	PROJ
NIGHT SETBACK THERMOSTATS	3948	987	4513	2453	6622	2980	3208	1062				
TIME CLOCK SHUTDOWN												
DAMPER MODIFICATION												
CONTROLS UPGRADING												
BOILER TEMP. RESET												
HEATING PUMP CONTROL												
ZONE VALVE UPGRADE				2500		2500						
FURNACE REPLACEMENT												
COMPRESSOR UPGRADE												
WINDOW REPLACEMENT												
WINDOW BLOCKING												
ATTIC INSULATION	1437	359										
CRAWL SPACE INSULATION												
VESTIBULE DOORS	1515	379										
PIPE/DUCT INSULATION	3920	980										
WEATHERSTRIPPING		100		100		100		100				
URINAL FLUSH CONTROL												
SHOWER HEADS												
CEILING FANS												
LIGHT SWITCHING												
FLUORESCENT REPLACEMENT		205		591		1037		795				
INCANDESCENT REPLACEMENT												
H.P.SODIUM LIGHTING												
PARKING PLUG CYCLE		1440		1440		1682		1596				
LOAD SHEDDER												
START TIME OPTIMIZER												
INFRARED SCANS												
BOILER TUNEUP												
MOTIVATION MATERIAL												3450
CURRICULUM MATERIAL												3450
OFFICE SUPPLIES												1150
TOTALS	10820	4450	4513	7084	6622	8299	3208	3553				8050

APPENDIX B

DISTRICT ENERGY CONSERVING POLICIES

1. Medicine Hat School District

Energy Conservation Policy

and

Energy Savings Plan

2. Peace River School District

Energy Conservation Policy

MEDICINE HAT SCHOOL DISTRICT NO. 76

POLICY HANDBOOK -- SECTION A

ENERGY CONSERVATION POLICY

The Board of Trustees recognizes that energy conservation is a priority and therefore determines than an energy management program be implemented in its schools to conserve the use of energy by the District's facilities. The Board also encourages staff and students to develop habits of an energy conserving nature in their general life style.

To achieve this goal supporting plans and procedures shall be developed to establish:

a) seasonal operating practices for each of the District's physical plants

b) statements of maintenance personnel responsibilities for energy management for each of the District's physical plants

c) statements of custodial personnel responsibilities for energy management for each of the District's physical plants

d) statements of professional staff responsibilities for promoting energy management

The management of energy is a concern of every administrator in every school. The potential exists for reduced energy consumption and reduced energy costs without major expenditures. Guidelines, available in each school, illustrate areas where energy may be saved. Innovative administrators will find other ways of saving additional energy.

Approved & Adopted:

September 14, 1981

ENERGY MANAGEMENT GUIDELINES

The Board of Trustees, administrators, teachers, students, custodians and maintenance personnel must cooperate in the implementation of energy conservation measures to produce effective results. The measures specified in these guidelines are often maximum initiatives to be taken. Their implementation may be tempered with a knowledge of circumstances in each building both physical characteristics and user needs.

The following energy management measures are identified as specific responsibilities of various groups and are necessary in implementing the energy conservation policy:

I. *School Board*

1. *Develop an energy program designed to reduce the consumption of energy and to eliminate the waste of energy in the physical plants operated by the Medicine Hat School District No. 76.*

II. *Energy Conservation Committee*

1. *Carry out the Board's Energy Conservation Policy and provide leadership in energy conservation as it applied to technical building modifications, energy management practices and curriculum development;*

2. *monitor schools' efforts, evaluate their performance and give them specific feedback by comparing energy use to building activities scheduled and climatic conditions;*

3. *publicize the Energy Conservation Program and results of energy consumption monitoring so that all groups within the school and community are aware of efforts and achievements by implementing the following:*

   i) *receive and assess periodic reports on energy consumption from schools*
   ii) *produce and distribute monthly energy use reports to the Board and to each school*
   iii) *obtain mean daily temperatures and monthly degree days from the nearest weather office for use in evaluation of energy consumption data of schools*
   iv) *check school energy consumption at month end;*

4. *implement an incentive program to encourage energy savings by schools;*

5. *review recommendations from administrators regarding changes to specific Energy Management guidelines as they apply to their schools;*

6. *determine areas of waste of energy and bring forward recommendations for corrective action;*

7. *ensure the co-operation of students and staff members by instituting a curriculum sub-committee and through it, energy consciousness into classroom curricula;*

8. provide technical assistance in implementing energy management measures, including staff training.

III. Administrators

1. Monitor people's efforts and give them specific feedback on their performance;

2. assign teachers, clerical staff, custodians and students specific responsibilities for their work spaces in accordance with guidelines;

3. publicize within the school the energy conservation program and results of energy consumption monitoring so that all groups are aware of efforts and achievements by ensuring that monthly energy performance charts are displayed in high traffic, high visibility areas;

4. ensure implementation of energy conservation measures;

5. ensure that gas and electricity meters are read monthly by volunteer teachers, students or other staff members;

6. ensure that all staff are aware of their responsibilities with respect to energy management and adequately trained to carry them out.

IV. Teachers

1. Ensure that classroom lights are switched off when rooms are vacant (recess, noon, after school);

2. shop instructors should selectively switch off lighting when only portions of their shops are in use, exhaust should be operated as little as possible in winter, late autumn and early spring. During cold weather use of exterior doors should also be minimized. Equipment should be operated in an efficient manner;

3. substitute day lighting from existing windows and sky lights for electrical lighting where feasible;

4. ensure that all windows are firmly closed at 1700 hours;

5. ensure that both outside and vestibule doors are firmly closed when leaving the building;

6. institute energy consciousness into classroom curricula;

7. ensure windows are closed when heating and ventilation systems are operating;

8. ensure radiators have a free flow of air around them by ensuring that there are no obstructions within one foot of the radiator;

9. use drapes or blinds effectively (close at night; in winter open in day time to allow the sun's heat in and in summer close in day time to keep the sun's heat out).

V. Students

1. Ensure that classroom lights are switched off when rooms are vacant (recess, noon, after school);

2. ensure that all windows are firmly closed, check daily at 1600 hours;

3. ensure that both outside and vestibule doors are firmly closed when leaving the building;

4. ensure windows are closed when heating and ventilation systems are operating;

5. ensure radiators have a free flow of air around them by ensuring that there are no obstructions within one foot of the radiator;

6. use drapes or blinds effectively (close at night, in winter open in day time to allow the sun's heat in and in summer close in day time to keep the sun's heat out).

VI. Clerical Staff

1. Ensure that office lights are switched off when rooms are vacant;

2. ensure that all windows are firmly closed;

3. ensure that both outside and vestibule doors are firmly closed when leaving the building;

4. ensure that electrical equipment is switched off when not in use.

VII. Custodial Staff

A. Year-round Procedures

1. Minimize electrical use by substituting day lighting from existing windows and sky lights for electrical lighting when feasible;

2. minimize use of electrical lighting systems, lights should be turned off in all unoccupied areas at all times;

3. during cleaning, lights should only be used in the working area;

4. ensure that all windows are firmly closed, check daily at 1600 hours;

5. ensure that both outside and vestibule doors are firmly closed (check daily at frequent intervals especially after periods of heavy traffic);

6. ensure that leaking hot water taps are repaired;

7. ensure that burnt out lights are replaced immediately;

8. ensure that luminaries and bulbs are cleaned annually;

9. replace all fluorescent bulbs every four years;

10. clean air filters monthly;

11. lubricate motors and other rotating equipment quarterly (or as recommended by manufacturer);

12. ensure that equipment is switched off in July and August;

13. outside security lighting should be switched off during daylight hours;

14. report all broken or cracked windows and damaged doors (panel closing mechanism or locking mechanism as quickly as possible) and ensure that repairs are made;

15. ensure that leaking hot water pipes are repaired, check all belts, fans, motors for proper operation, repair or report any irregularities.

B. Seasonal Operating Practices - Summer

1. Shut off all space heating systems;

2. shut off hot water heating systems where possible;

3. shut off ventilating systems for unoccupied area;

4. shut off air conditioning for unoccupied areas;

5. in occupied spaces operate air conditioner from 1000 - 1500 hours or only long enough to avoid significant discomfort.

C. Seasonal Operating Practices - Fall/Spring

1. Set thermostats back to 15°C daily at 1600 hours;

2. set thermostats to 20°C at 0700 hours each morning that classes are held;

3. in air conditioned spaces operate the cooling system from 1000 - 1500 hours or as required to maintain reasonable comfort level and only during working days, maintain temperatures in cool spaces at 24°C or higher;

4. shut off ventilating systems daily at 1600 hours;

5. turn on ventilating systems between 0800 and 1100 hours each day that classes are held where necessary;

6. ensure that corridor and entrance thermostats are never set above 18°C.

D. Seasonal Operating Practices - Winter

1. Set thermostats to 20°C at 0700 hours each morning that classes are held;

2. ensure that thermostats are set no higher than 15°C when schools are not in use (check daily at 1600 hours) - care must be taken to ensure that motors and water pipes located near the walls do not freeze as a result of lower temperatures;

3. ensure that corridor thermostats are never set above 18°C;

4. ensure that the air cooling systems are not operating.

VIII. Maintenance

A. Mechanical

1. Ensure that controls are calibrated and in good condition;

2. adjust outside air dampers for proper closure (some air by-pass may be required for proper function or mechanical system - mechanical engineer should be consluted);

3. adjust heating equipment to ensure maximum combustion efficiency;

4. external door mechanism should be removed so that doors will not stay open;

5. clean strainer screens and water circulating systems at six-month intervals;

6. ensure that there is no air duct leakage;

7. repair water leaks.

B. Structural

1. Repair and seal broken windows;

2. repair damaged doors and hardware.

IX. General

1. Thermostat settings in classroom should be 20°C in daytime, 15°C during the evening and night; entrances, hallways and gymnasia should be 18°C in daytime, 15°C during the evening and night; (thermostat should be checked frequently for proper settings)

2. hot water heating system circulation pumps can be switched off on warm days, this will help prevent overheating in some cases;

3. ventilation exhausts should only be used when required, for instance gymnasium exhaust fan should be operated only during large assemblies;

4. supply air - ventilation systems should be operated only when rooms are occupied - recommended start up times are between 800 and 1100 hours and shut off times are between 1500 and 1700 hr. daily - all doors and windows should be closed when the ventilation system is operating;

5. air conditioning - recommended thermostat settings for cooling are 24-25 degrees C, air conditioning should only be used in occupied areas, evening and night time operation is usually unnecessary, all doors and windows should be closed when the air conditioning system is operating;

6. *lighting - the following table gives a guide as to length of time required in which room should be unoccupied before switching off lights is economical:*

Type of Light	*Time Room is Unoccupied*
Incandescent	*more than one minute*
Fluorescent	*more than eight minutes*
Mercury vapour	*more than thirty minutes*
Metal halide	*more than thirty minutes*
High pressure sodium	*more than thirty minutes*

MEDICINE HAT SCHOOL DISTRICT NO. 76

POLICY HANDBOOK - SECTION A

ENERGY SAVINGS PLAN

Purpose: *This plan is designed to recognize the efforts made by the schools to reduce energy (electrical and gas) consumption.*

Plan: *A base period will be established for each school. Whenever possible, the preceding 36 month period will be used. In other cases, the period since the school opened will be used.*

Review: *The plan is to be reviewed annually until all schools have achieved peak energy efficiency.*

Actual dollar savings will be figured in the following manner:

Distribution of Savings:

Energy (kwh or MCF) Saved	*% of Savings to School*
10 to 20%	*10%*
20.1 to 30%	*15%*
30.1 to 40%	*25%*
over 40%	*40%*

For an annual 10% or greater savings the minimum return to the school would be $120 per annum.

Example:

Electrical Savings

Month	*Base kwh*	*Actual kwh*	*Actual kwh cost*	*kwh Difference*	*$$$ Savings*
April	*49680*	*37200*	*0.025*	*12480*	*312.00*
May	*32720*	*29280*	*0.025*	*3440*	*86.00*
June	*37520*	*28320*	*0.025*	*9200*	*230.00*
	119920			*25120*	*628.00*

$\frac{25120}{119920}$ *(100) = 20.9% decrease*

% of kwh saved = 20.9%

$$$ Savings = $628.00

15% X 628.00 = $94.20 to school

Approved & Adopted:

October 13, 1981

GAS SAVINGS

Month	Base MCF	Actual MCF	MCF Difference	Base Degrees Days	Actual Degree Days	Degree Days Factor	Actual MCF Cost	Corrected MCF Difference
April	632	327	205	350.9	225.0	0.64	0.83	78.2
May	154	52	102	194.0	119.4	0.62	0.83	42.8
June	116	92	24	49.2	57.5	1.17	0.83	43.6
	902							164.6

$$$ SAVINGS

April	64.94
May	35.51
June	36.16
	136.61

B.12

$\frac{164.6}{902}$ (100) = 18.2% decrease

% of MCF saved = 18.2%

$$$ savings = $136.61

10% X 136.61 = $13.66 to school

Note: Degree Days Factor = $\frac{\text{Actual Degree Days}}{\text{Base Degree Days}}$

Corrected MCF Difference
= Base MCF X Degree Days Factor - Actual MCF

∴ Total $ to school = 94.20 + 13.66 = $107.86

MEDICINE HAT SCHOOL DISTRICT NO. 76

Energy Saving Plan

1981

SCHOOL	ELECTRICITY		GAS		TOTAL
	% SAVED	REBATE $	% SAVED	REBATE $	REBATE $
Alexandra Junior High	4.1	0.00	5.2	0.00	0.00
Central Park	24.2	60.00	-6.3	0.00	60.00
Connaught	20.2	128.69	-3.3	0.00	128.69
Crescent Heights High	-1.7	0.00	-11.9	0.00	0.00
Crestwood	8.0	0.00	-17.0	0.00	0.00
Earl Kitchener	1.5	0.00	15.5	60.00	60.00
Elm Street	18.6	60.00	18.1	65.49	125.49
Herald	19.3	98.87	-16.4	0.00	98.87
Medicine Hat High	9.1	0.00	-9.4	0.00	0.00
Montreal Street	9.8	0.00	4.6	0.00	0.00
River Heights	22.4	77.72	8.1	0.00	77.72
Riverside	20.4	61.00	-3.4	0.00	61.00
Southview	9.0	0.00	-17.9	0.00	0.00
Vincent Massey	16.7	86.56	-6.7	0.00	86.56
Webster Niblock	21.1	105.44	-5.9	0.00	105.44
					$803.77

NOTE: Insufficient Data Available for Ross Glen and George P. Vanier

PEACE RIVER SCHOOL DIVISION

ENERGY CONSERVATION

1. It is the policy of the Division that an energy management program be implemented in its schools to conserve the use of energy by the Division's facilities and to encourage its staff and students to develop habits of an energy conserving nature in their general life style.

2. Toward this objective the following supporting plans and procedures shall be established:

   a) Seasonal operating practices for each of the Division's physical plants;

   b) Energy related building maintenance practices for each of the Division's physical plants;

   c) Statements of caretakers' responsibilities for energy management in each of the Division's physical plants;

   d) Statements of professional staff responsibilities in promoting energy management.

3. In support of the procedures and guidelines developed in accordance with paragraph 2, the following parameters are established:

   a) Set thermostats to achieve room temperatures of 20°C at school opening time, unless a lower temperature is desired (re: gymnasium);

   b) Set corridor thermostats at 18°C each morning that classes are held;

   c) Set all thermostats back to 15°C daily at 4:00 p.m. except in areas where warmer temperatures are required by a particular building's operation procedures and in cases of after hours use during which the day time settings shall prevail.

   d) Adjust temperature settings to maintain domestic hot water supply in the range of 38° to 42°C;

   e) Turn on ventilating systems at 8:00 a.m. each day that classes are held;

   f) Shut off ventilating systems daily at 4:00 p.m. except in areas where required for evening use in which case system is to be shut off at end of use period.

APPENDIX C

CURRICULUM ACTIVITIES OUTLINE

The First Year 1980-1981

The curriculum component was established in September 1980 and coincided with the start of the school year and initiation of the technical retrofit aspect of the field project. The perceived immediate need to implement the curriculum component imposed by this timeframe precluded preplanning and development of support materials directly related to the project. The response of ENR personnel to this situation as well as outcome is summarized below:

PROGRAMME ESTABLISHMENT

Step I - Curriculum Component Focus

The main focus for the curriculum component was developed to "engender student involvement in the task of conserving energy in their classrooms and their schools." This focus paralleled those of the technical and motivational project components to conserve energy in the schools, and it was perceived that its implementation would have the following side benefits:

i) Provide an opportunity to teach and learn about topics related to energy conservation already existing in the curriculum;

ii) Provide a task situtation to encourage teamwork and interplay between all occupants of the school;

iii) Result in "spin-off" energy conservation in the homes of students involved;

iv) Long term attitudinal changes regarding the wasteful use of energy; and

v) A better understanding of the complexity of dealing with issues, making conscious and deliberate decisions, organizing investigations, and solving problems.

Although these side benefits were perceived to be important, the intent was to concentrate on the main focus so that the programme of direct student involvement in

the field project would not be side-tracked on related energy studies. The instructional method was to engender student involvement.

Step II - Implementation Assumptions

The curriculum component was to be implemented under the following assumptions:

a. The role of ENR personnel was to be supportive and not to impose ideas or request the use of specific curriculum materials or particular teaching/learning approaches;
b. The role of ENR personnel was to cooperate and communicate on activities, plans and findings with Alberta Education Field Project and Curriculum Branch personnel;
c. The role of the participating school districts was to assist contacting participating schools and teachers through an Energy Conservation curriculum Sub-Committee or a designated curriculum contact person; and,
d. A pre and post project evaluation of student attitudes regarding energy conservation should occur. (Note: This evaluation was prepared but permission to use it was not granted by R. Huber, Field Project Manager.)
e. The 1980-81 school year should be used as a trial period for available curriculum materials and effort not made to recreate them.
f. School Districts, schools and teachers are responsible for implementing energy conservation curriculum and student involvement.

Step III - Implementation Strategy

The implementation Strategy was as follows:

October 1980: Meetings with project team personnel and Energy Conservation Committees and obtain feedback and approval regarding initial course of action.

Late October/November 1980: Meetings with school energy conservation liaison teachers to:

- o Introduce student attitude pre-test (did not occur);
- o Gain insight into teacher concerns, ideas, recommendations regarding student involvement;
- o Identify those willing to use materials and ideas with students on a trial basis;
- o Introduce existing materials;
- o Offer ideas for local implementation and share ideas between jurisdictions;
- o Develop implementation plan for the school year and establish local committees.

November 1980: Pretest all grade 4-12 students (did not occur);

December 1980/May 1981: o Assist with local initiatives

November 1980/June 1981: o Produce support materials, carry out workshops and maintain ongoing communication based on identified needs. (Note: ENR field manpower allocation for this task was expected to be 3 days per month in each school jurisdiction.)

June 1981:
- o Carry out post-test (did not occur);
- o Prepare report on curriculum component of project. Note an evaluation based on this report is noted in Table C-1

CURRICULUM MATERIALS UTILIZED

During the first year of the project a variety of materials in print and audio/visual media were suggested, ready made or created for the project. These materials are listed below:

TABLE C-1

FIRST YEAR CURRICULUM PROGRAMME EVALUATION

A - Specific to the Project

i) started without materials to offer

ii) started too late into the school year

iii) school jurisdictions spread far and wide

iv) school selection not based on teacher concern/interest/choice, resulting in some negative response and feelings of imposition

v) selection of school reps on student involvement sub-committees not done necessarily on the basis of interest and concern

vi) school reps changed for many schools resulting in a lack of continuity

vii) too much reliance was placed on the (ENR) consultant and school reps did not generally wish to take on the responsibility for the development of the local program

C.5

B - In General Amongst Teachers Regarding The Energy Conservation Message

i) as with the general public in Alberta, energy conservation is not considered to be an important concern by many

ii) the student is not in a position to exercise a great deal of control over energy use in the school or the home in that many of the major factors are technical not behavioral and much of the use is beyond their control

iii) the energy topic (energy itself) is difficult in terms of conceptualizion, jargon, measurement and the associated technology

iv) the energy topic is extremely broad

v) energy appears only sporadically in the school curriculum and therefore need not be covered by many teachers (energy conservation even less so)

34

vi) school energy savings (money savings are not shared in most instances by those responsible for savings

33 vii) some of the curriculum advocating the teaching of energy conservation (the interim 1980 Elementary Science Curriculum) is so new that it has not been incorporated or even recognized by some or most teachers

Source: D. Stoker, Alberta Energy and Natural Resources

The Second Year 1981-1982

A major emphasis shift occurred in the second year, in the approach ENR personnel took towards the curriculum component of the Energy Conservation Field Project. From the perspective of ENR personnel, responsibility shifted to the energy consultants to initiate this component in the field. The energy consultants were closer to the local scene, and it was felt, therefore better suited to this task. From the role of being the primary catalyst in the field in the first year, ENR personnel shifted emphasis to material development and backup support to locally initiated curriculum and motivational efforts.

The ENR perspective is embodied in the objective of an approach to consulting that was suggested that it would maximize student involvement. This approach was outlined to the energy consultants as a guide for their field efforts in the curriculum and motivation component in the second year, and which is noted in Table C.2.

Curriculum and Motivation Support Assumptions

The support ENR extended into the 1981-82 school year to the field project is outlined in Table C.3

Curriculum and Motivation Activities

During the second year of the project a number of activities were carried out in support of the field project and are noted in Table C.4.

In addition to its direct involvement in the field projects, ENR developed and collected a number of curriculum support materials as part of their larger mandate of promoting energy conservation province wide. These materials are listed below:

Developed Material

- The Glut Kit (Grade 3 multi-faceted teaching aid)
- Classroom Energy Poster Puzzle (puzzle)
- Home Energy Poster Puzzle (puzzle)
- Energy Sleuths (Grade 6 activity kit)

Collected Material

- The Energy Game (gameboard) Energy Mines and Resources Canada
- Energy Conservation Tips for the Classroom (list)
- What is Energy (Grade 5 curriculum unit) Ministry of Education and Ministry of Energy, Ontario
- Little People "Cut-and-Paste" (puzzle activity on conservation) Energy, Mines and Resources Canada
- Conservation Campaign (kit materials)

TABLE C.2

STUDENT INVOLVEMENT FOR EFFORT EXTENDED THROUGH CONSULTANCY

1. A Reasonable Objective

To influence a large number of students in such a way as to develop a lasting attitudinal and behavioural change with respect to the use of energy such that it is conserved.

2. A Reasonable Expectation in School Classrooms

(The following represent components of an instructional strategy that should likely result in the objective stated above taking, into consideration the limitations of time, knowledge, interest, curriculum details, etc. facing the average teacher.)

a. Classroom Instruction Time:

- to establish the importance of energy conservation
- to establish ways to do it
- to establish how to study it

(requires 3 or more workable lesson plans with additional resources possibly consisting of student worksheets, films, filmstrips, visiting expertise, etc.)

b. Student Involvement Activities:

- to establish student skill and commitment

(requires minimally 2 or 3 activities to take place in conjunction with classroom instruction such as: classroom or school energy audits, school energy tours, meter reading experience, experimentation with temperatures/insulation/lights/etc., games, contests, home study extension, posters/collages and other art projects, sweater day, etc.)

c. Energy Reminders:

- to keep the ideas alive year round

(requires such things as light switch reminders, mobiles, bulletin board displays, wall posters, door hangings, etc.)

d. Ideal Additions to Help Achieve the Objectives:

- o an energy conservation day once per month
- o wall charts displayed prominently, which show energy use daily or monthly and compare years
- o money saved on energy is returned for student project use
- o caretaker support and willingness to help teachers.

Source: Presentation outline given to Energy Consultants (including R. Huber) summarizing degree of success and support to be extended into the 1981-1982 school year
D. Stoker, ENR, May 1981

TABLE C.3
ALBERTA ENERGY & NATURAL RESOURCES
CURRICULUM & MOTIVATION COMPONENT SUPPORT ASSUMPTIONS
1981/82 SCHOOL YEAR

- Consultancy will be available on request with meetings organized when and if needed by the student involvement sub-committee members or the energy engineer consultant;

- Mailing lists will be maintained for the project schools and any new materials created or considered useful will be sent c/o "energy conservation" to the schools;

- Local responsibility for curriculum development will be encouraged with leadership coming either from the student involvement sub-committee or local board consultants in subject areas where energy conservation instruction is applicable;

- Each of the school jurisdications will be encouraged to trial prepared curriculum materials such as the S.E.E.D.S. materials at more than one grade level and to make use of the funds set aside in the project for such purposes;

- Special effort will be made to trial materials prepared for province-wide distribution and use with the project schools.

Source: Presentation outline given to Energy Consultants (including R. Huber) summarizing degree of success and support to be extended into the 1981-82 School year. D. Stoker, Alberta Energy and Natural Resources, May 1981

TABLE C.4
ALBERTA ENERGY AND NATURAL RESOURCES
CURRICULUM AND MOTIVATION ACTIVITIES
1981/82 SCHOOL YEAR

- The "Student Involvement Notice" series was continued with notices 8 through 15 being sent to the project schools. These notices included enclosures such as lesson plans, posters, games and puzzles primarily usefull to elementary teachers.

- Meetings were organized with liaison teachers in three of the five school jurisdictions to assess materials and activities attempted in the first school year of the curriculum component of the project.

- All five of the participating school jurisdictions received visits from the energy van team with 22 schools visited in total. Approximately 180 teachers and 3,910 students participated in presentations.

- Articles were written for the project publication "the Energy Conservation Quarterly". The Volume One Number Four issue was entirely on student involvement; authorship and illustrations provided by the ENR prgramme.

- First school year summary reports were written for nearly all schools in four of the five jurisdictions following personal visitations and discussions with principals of participating schools.

- A display was provided in the Rockyview School Division to assist in their "lighthouse" efforts at communicating features of the project to neighbouring school divisions.

- Preliminary development of a grade 6 kit called Energy Sleuths has resulted in a first draft version of a unit of study to be piloted and workshopped extensively in the 1982-'83 fiscal year.

Source: 1981-82 Fiscal Year Summary
D. Stoker, Alberta Energy and Natural Resources, 18 May 1982.

i SUGGESTED MATERIALS

1. Society, Envirionment, Energy, Development Studies Foundation Materials:

These materials have been referred to on numerous occasions with school reps in the 50-school project. Brochures and posters detailing costs have been distributed at meetings.

2. Calgary Energy Conservation: Curriculum for Living Materials:

The Calgary curriculum guides have been diplayed at meetings involving reps from the 50 - school project and a notice mae specific reference to their availability.

ii SUPPLIED MATERIALS - READY-MADE

Teacher Mini-Units from the Federal Department of Energy Mines and Resources:

Fifty sets of the nine mini-units entitled:

i) Non-Renewable Sources of Energy
ii) Renewable Sources of Energy
iii) Solar Energy
iv) Wind and Water Energy
v) Recycling
vi) Consumerism
vii) Home Conservation
viii) School Conservation
ix) Energy Conservation in Transportation

were copied and sent to the 50-project schools with a covering notice. Extra copies of these were considered the most appropriate to the project.

Audio-Visual and Print Resources Guide:

A 24 page annotated list of print and A.V. resources was extracted from a publication entitled Government Resource Materials Guide prepared by the Alberta Department of Environment. It was sent to the field project schools.

Energy: The Canadian Picture (a teacher's guide):

This publication available from the Ministry of Energy, Mines and Petroleum Resources British Columbia was provided to all field project schools.

Blowhard:

This film from the N.F.B. has been used extensively in the Rural School Visitation Program program to establish the main differences between non-renewable and renewable energy supplies. It is considered highly motivational and enjoyable for grade 4 to 6 students. Blowhard was used in a few of the field schools in Peace River, Fairview Rockyview, Lakeland and Edmonton.

Activity Sheets for Elementary Grades:

A selection of activity sheets that pertain either to energy conservation or school use of energy has been obtained from the Ontario Miniastry of Education's Curriculum Ideas for Teachers Series on energy. A notice introducting the 21 selected activities accompanied the activity sheets which were sent to the 50 project schools.

A Set of Six Grade Specific Lesson Sets:

A publication Energy and My Environment originally produced by the Governor's Energy Office, State of Florida provided six lesson set specific to grades one through six. These materials were made available to six schools involved in the Rocky View Energy Conservation Week.

Energy Management for the Future Series Filmstrips:

This filmstrip series was purchased and loaned to four schools for possible use in the Rocky View energy conservation week.

Energy Management for the Future Series Filmstrips:

This filmstrip series was purchased and loaned to four schools for possible use in the Rocky View energy conservation week activities.

Energy Matters and Solar Energy Matters Booklets and Teachers' Guides:

These in-house publications were made available to all field project schools with a recommendation for use in grades 7 to 12.

Energy and the Environment: I and II and Teachers' Guides:

These two issues of the Alberta Environment publication Environment Views were brought to the attention of representatives of high schools in the field project.

The Energy-Environment Simulator:

This apparatus has been used in demonstrations with some field school project teachers with possible expanded use in the future in Rockyview

iii SUPPLIED MATERIALS - CREATED NEW

In a few situations where ready-made materials were either inappropriate or non-existant, and where a real need for support material was evident, resource materials have been created.

Energy Conservation Planner/Poster:

Modelled on a similar idea used in Calgary, a poster was provided to each of the field project schools to provide both energy conservation project ideas and a calendar on which to plan energy conservation activities for the shcool year.

School Energy Consumption Poster/Wall Chart

A poster/wall chart concerning natural gas and electricity consumption was issued to each of the field project schools. The large blue print sheets were to be posted in hallways and monthly school energy statistics were to be charted. (The 1979-80 shcool year statistics were supplied for each of the 50 schools.)

School Floor Plan Maps:

To help facilitate energy conservation studies within the field project, floor plan maps were obtained for every school from the Department of Education and 20 copies were provided to each school rep. A notice suggested ways the floor plan maps could be used with students to record data collected and to carry out activities.

Talk-Back Sheets:

To encourage students, teachers and other school staff to report their concerns and/or findings relevant to school energy conservation, these sheets were supplied in quantity. The local energy consultant was to respond whenever possible to talk-back sheets filled out and submitted. Used in all field project schools.

Energy Snoop Activities and Buttons:

To encourage school-wide activities that might include meter reading, light switch monitoring or long-term temperature graphing, "Energy matters...use it wisely' buttons were supplied along with cut-out 'energy snoop permits'. Used in all field project schools.

E. C. Ideas:

To provide an initial set of ideas for the field project schools, a set of 10 ideas for lessons was put together and distributed early in the project.

Brainstorming Ideas:

Following initial meetings with the 50 project school reps, a list of 52 "brainstromed" ideas was provided. These ideas originated with the project school teachers. These ideas are noted below in Section iv.

iv NEAT IDEAS THAT MIGHT BE USEFUL FOR STUDENT INVOLVEMENT

ZONE I

1. Establish a "reward card - point system" where individual classrooms get points for doing energy conserving tasks such as:

    i) turning off lights at recess (1 pt)
    ii) turning down thermostat in room after school (5 pt)
    iii) checking windows in the classroom for proper seal (5 pt)
    iv) maintaining a chart showing the energy consumed for lighting the school (5 pts per month)
    v) etc.

2. Incorporate into the social studies curriculum as an example of social action.

3. Provide a percentage of the funds saved as a reward to the student union of the school in recognition of student involvement.

4. Hold a school energy symposium where students role play various energy conservation interest groups such as executives from a company that markets fiberglass insulation or a group of contractors that build energy efficient homes, etc.

5. Turn energy conservation into a contest between schools.

6. Hold a poster contest.

7. Have an energy fair similar to a science fair.

ZONE II

1. Incorporate the energy conservation topic into existing curriculum, in particular for the topic 'heat' in science and 'resources' in social studies.

2. Carry out experiments to test the insulating capabilities of different productions such as cardboard, sawdust, fiberglass, styrofoam, etc.

3. Industrial arts projects to build pet shelters that are insulated to prevent body termperature loss but maintain proper ventilation.

4. Have a school sweater day once a week (or once a month) when school temperature is lowered to assess if comfort level is decreased or not.

5. Conduct interclass contests at particular grade levels to see how conserving students can be.

6. Select a small room for an energy conservation discussion and monitor the temperature before and after the discussion to illustrate the contribution of body heat and to illustrate the need for ventilation in a building.

7. Have students list the most useless or ridiculous energy wasting they can think of outside the school (eg. electric golf carts for people looking for exercise) and then compile a list for the school.

8. Hold a turn the lights out activity for one week whereby one light or set of lights is put out (loosen in the electric socket) for one week in each classroom, and if no ill effects are noted is then left off.

ZONE III

1. Provide a teacher involvement planning guideline such as a sample project to help organize a sequence of activities with students.

2. Involve the custodial staff with student involvement projects to help explain some of the energy systems (such as how hot air is pumped around the school) to the students and to answer questions.

3. Develop an energy conservation newsletter to go between project schools to inform participants of specific activites taking place.

4. Form an energy conservation student task force called the "Energy Patrol" that reports to the caretaker in the morning and just after school to assist custodian and do monitoring.

5. Buy lots of cheap thermometers (ie. economy thermometers from Spectrum) for use in numerous experiments in the school.

ZONE IV

1. Establish the need for energy use control in the school by discussing if there are ill effects from the over-heating of classrooms. (Is it a good learning environment?)

2. Plan a survival program for drastic energy conservation for a school if there were a disaster (to deal with the extreme case).

3. Make an inventory of recreational activities that do not use up non-renewable resources.

4. Assignment to determine
   i) how the school staff wastes energy in the school; and
   ii) how energy is wasted in ndividual student homes

5. Attempt to illustrate how school energy consumption is related on a daily basis to weather conditions outside (ie. coldest days result in highest fuel usage).

6. To establish the importance of not wasting energy so that some day we end up having none, for one day or part of a day, turn off heat and lights to see the effect.

7. Assign a project to illustrate the increasing use of energy over the years.

8. Use wall charts to record activities that students do.

9. Assign class jobs to elementary students regarding doors, windows, lights, thermostats, etc.

10. Have a science energy fair with related energy conservation projects.

ZONE V

1. Charting temperatures inside and outside the classroom three times daily.

2. Take temperature readings in various parts of a classroom to discover reasons for variations observed in order to locate energy waste areas.

3. Students could be involved in model building to learn energy conservation techniques and at science fairs, have an award category for energy conservation projects.

4. Go on a field trip to a power plant.

5. Have a day in early summer without any school lights.

6. Have students calculate the fuel bills for the school on a monthly basis and graph the results.

7. Have at least some of the money savings returned to the students.

8. Have an energy week in the school in which all subjects relate to energy matters.

9. Have an "ENERGY HOG CONTEST" between three or four neighbouring schools (on a monthly basis) aimed at percentage reduction possibly with a focus on lighting.

10. Have students create displays for community malls or newspaper articles.

11. Have students calculate "visualizations" (ie. If all cars in Canada slowed down by 10 k.p.h., the gasoline saved would fill the gym _____ times in one day).

12. Perform classroom experiments such as measuring room temperatures before and after closing the blinds.

13. Carry out a "draft search" to see where in the school air is infiltrating the worst.

14. Perform experiments with thermometers on different walls to determine where insulation would be most appropriate.

15. After a discussion of the importance of energy on a cold winters day, shut off the power to a room for a long enough time to start to feel the effects.

16. Provide awards for students that come up with school energy conservation suggestions.

17. Have students monitor their own homes and investigate for possible energy savings.

18. Try to locate the most energy efficient room in the school and the most inefficient room.

19. Have students keep energy diaries regarding energy they consume for a day.

20. Assign students to "energy watchdogs" for short periods of time in order to monitor lights in rooms throughout the school, especially at recess breaks and after school when rooms are empty.

21. Have students make posters or logos for placement around the school.

22. Have students design a more energy efficient school using a scale model (such as out of cardboard).

APPENDIX D

ROCKY VIEW ENERGY CONSERVATION WEEK ACTIVITIES

PRINCIPAL AND TEACHER COMMENTS

GRADE LEVEL TASKS FOR ENERGY WEEK

Grade One
- colour and cut out pretending 'suns' and/or light bulbs to put around the shcool as reminders

Grade Two
- colour posters (supplied) and/or make theire own posters to go around school

Grade Three
- Participate in the 'button sheet' activity with grade 6's
- be 'energy snoops' at recess
- take part in an 'energy tour' of the school with the grade 6's
- prepare a 4'x8' energy users collage to go in hallway with 5 questions to go with it

Grade Four
- watch film(s) on energy conservation ie.
  The Lorax
  Blowhard
- work through the Glut work book on waste
- take part in an 'energy tour' of school with grade 6's

Grade Five
- watch film(s) on energy conservation
- prepare a "20 energy questions" exchange with the grade 4 or 6 class
- prepare a slide show for use with other grades
- listen to presentation by Van Crew

Grade Six
- conduct the 'button sheet' activity with grade 3's
- watch films on energy conservation
- prepare domonstration tables in the hallway
- conduct energy tour of school for grades 4 and 5
- prepare a slide show for use with other grades
- listen to presentation by Van Crew

OTHER POSSIBILITIES FOR VARIOUS GRADE LEVELS

1. Guest speakers
   - from Utilities Companies
   - Jeff Bannard
   - Dan Stoker

2. Button Contest

3. Door Hanger Reminders Contest

4. Thermostat Reminders Contest

5. Achievement Awards Day
   - grades 1 - 3
   - grades 4 - 6

6. Computer Display for a parent's night

7. Parent's Night

8. SEEDS UNIT results (grades 4 - 6)

9. Bulletin Board Displays

10. Infra-red scanner

PRINCIPAL AND TEACHER COMMENTS

Position		Comment
Principal	-	"All the teachers were willing to take a unit in this area of energy conservation and just really give it all they had."
	-	"It was a total school effort."
	-	"It is one of the few times I have ever seen this happen . . . to get this total involvement."
	-	"The program has run so long in this school that it's become certainly a habit. I've walked into classrooms on numerous occassions and asked, is it bright enough in here . . . only one bank of lights on . . . there's enough light coming in the windows . . . it's adequate."
	-	"The same story is going home. What can we do there to make our home more energy efficient."
Teacher	-	Concerning the Energy Conservation Day . . . "I think it was really worthwhile. I know that your part went over exceptionally well . . . and Mr. Rennie sat in on it too. I haven't had one negative comment regarding it."
Teacher	-	"Overall quite favourable."

Source: Short Report Rocky View School Division
D. Stoker May 1981

APPENDIX "E"
ENERGY CONSULTANTS'
WORKSHOP MATERIALS

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

Energy Consultant's Name: _____

Zone: _____

Mailing Address: _____

_____

_____

_____

Telephone Number (s): _____

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 1

FIELD PROJECTS BACKGROUND

Name: _____ Zone: _____

Please specify background to the energy conservation field projects with which you have dealt in your zone. Details required should include: (i) general type of project component by school/district; (ii) a list of major events in chronological order that have occurred from project initiation, through sponsorship acquisition to retrofit installation; (iii) list those people/groups with whom you have met and with whom you deal in your role as energy consultant; (iv) comment about technical, motivational and curriculum components and, (v) comment whether you generally believe that the project in your zone has been wholly successful, moderately successful, moderately unsuccessful or unsuccessful.

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 2

PERCEPTION OF ENERGY CONSULTANT ROLE/FUNCTION

Name_____ Zone:_____

Please describe your role as an energy consultant.

(i) State how you have organized your assignment from its inception to current circumstances indicating functions that you are performing currently.

(ii) Use one example from a school retrofit that would be an average assignment as well as one retrofit that would be exceptional, describing in both cases your functions.

(iii) Describe reporting procedures to your superior and indicate what details have been established for reporting.

(iv) If you had an opportunity to revise your role/functions what alterations would you suggest to the existing conditions? Place in priority ranking from most important to least important.

(v) Do you believe that your proposed changes to your role could be best implemented through the school district/board, Alberta Education or some other agency?

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 3

DESCRIPTION OF ROLE/FUNCTION OF ENERGY COMMITTEE

Name_____ Zone:_____

Please describe the role and function of the energy committee in your zone. Use the headings:

(i) Who is involved by name and position;

(ii) Frequency of meetings and general content;

(iii) Your perception of the energy committee's commitment to energy conservation;

(iv) Your perception of the energy committee's evolution in thinking about the retrofit projects and energy conservation matters; and

(v) Are the committees considering energy conservation projects beyond the immediate retrofits -can they be classified as technical/motivational/curricula based?

(vi) How would you structure the roles/function of the energy committees if you had to initiate another committee in the new zone?

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 4

PERCEPTION OF IMPACT OF ENERGY CONSERVATION FIELD PROJECTS

Name_____ Zone:_____

In a previous exercise you have indicated the degree of success that you believe has been achieved in the energy conservation field projects in your zone.

(i) Please elaborate on the degree of success achieved. Details should be grouped into the technical motivational and curriculum components.

(ii) How have the recipients, that is the school administrators, maintenance and teaching staff, reacted to the field projects? Discuss by each school/board.

(iii) How have the students reacted to the field projects? Discuss by each school.

(iv) How has your energy committee reacted to the process of preparation of retrofits?

(v) If any obstacles occurred and were discussed by the recipients of the programme, what were they and how were they resolved?

(vi) Are technical data available for each retrofit school which would indicate degree of savings (energy and hence cost) from this project.

(vii) Do you believe that there is any comment required to reveal the cost effectiveness, or benefit of the programme to the recipients and if yes how would you structure the comment?

(viii) Are there other retrofit projects that could be implemented in each school under the current programme guidelines, cost aside? Describe generally and can you estimate gross cost?

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 5

PERCEPTION OF PROGRAMME OBJECTIVES AND EXISTING GUIDELINES AS THEY RELATE TO YOUR ZONE

Name_____ Zone:_____

A description of the programme objectives and guidelines have been expressed by Dana Sundmark.

(i) Do all of the components of the energy conservation guidelines apply to your activities in each school? Discuss by school.

(ii) Have the objectives been met in your zone? Discuss by school.

(iii) Where and under what circumstances have the objectives not been met?

(iv) Where have you encountered obstacles to the guidelines and to what degree?

(v) In your opinion, what would you suggest as an alteration to the energy consultant role, administration role, etc. that would reduce obstacles to the guidelines use and achievement of the objectives.

(vi) Is an energy target appropriate for retrofits in your zone? What would it be, expressed in the appropriate units? How realistic would it be to achieve?

ENERGY CONSULTANT WORKSHOP

9 MARCH 1982

EVALUATION OF PHASE 2
ENERGY CONSERVATION FIELD PROJECTS
ALBERTA EDUCATION

EXERCISE 6

PERCEPTION AND COMMENTS REGARDING ADMINISTRATIVE PROCEDURES

Name_____ Zone:_____

(i) Please describe your perceptions of the content, use and effectiveness of the existing BQR Programme? Indicate strengths, weaknesses, and what you believe to be any impediments to its use by the recipients in your zone.

(ii) Please describe any other administrative procedure that you believe is an impediment to the field projects activities, from the [illegible]d acquisition stage to project completion stage.

(iii) What changes would you suggest to either the BQR Programme and/or administrative procedures to increase the effectiveness of the programme of energy conservation in your zone?

APPENDIX "F"

INTERVIEW QUESTIONNAIRE

FOR SENIOR SCHOOL BOARD ADMINISTRATORS
AND SCHOOL OFFICIALS

ENERGY CONSERVATION FIELD PROJECT
PHASE 2 EVALUATION

INTERVIEW QUESTIONNAIRE

Date: _____

Interviewee: _____ Title: _____

Interview Method: O Person O Telephone

Zone: O1 O2 O3 04 05

School Jurisdiction: _____

School Name: _____

Question 1 What was your involvement with the energy conservation field project?

- O Curriculum Sub-committee Member
- O Energy Steering Committee Member
- O Financial Administrator
- O Principal of School
- O Curriculum Development
- O Staff Motivator
- O Custodial Operations
- O Other

Question 2 Are you presently involved in any other energy conservation activities, either professionally or personally?

O Yes _____

O No

Question 3 Would you agree that energy conservation attitudes are important for Albertans to develop?

O Yes

O No

O Uncertain

Question 4 What was the emphasis of the energy conservation field project in your jurisdiction?

O Technical Retrofits

O Motivation Management

O Curriculum Development

O Uncertain

Question 5 What features of the energy conservation field project in your jurisdiction were most positive and beneficial from your perspective?

O E.C.F. Project funds were available

O BQRP money was available

O Services of a technical expert (energy consultant) were available

O School building(s) upgraded

O Retrofits are perceived to save money

O Appropriate information was available

O Energy Conservation consciousness was developed

O Energy Conservation measures were implemented

O Energy Bus class demonstration

O Motivational measures were derived

O Curriculum (course) materials were assembled

O Other _____

Question 6 What features of the energy conservation field project in your jurisdiction were <u>least</u> positive and of least beneficial from your perspective?

- O Lack of satisfactory manual or guidebook
- O Not enough project funds
- O BQRP administrative procedures are awkward
- O Services of technical expert (energy consultant)
- O Energy Steering Committee activities
- O Complicated equipment installed
- O Lack of satisfactory information about a complex subject
- O Energy Committee Membership composition
- O Lack of interest in topic expressed by staff members
- O Not enough technical retrofit measures
- O Not enough motivational measures
- O Not enough curriculum measures
- O Energy Bus class demonstration
- O Other _____

?O

Question 7 In your opinion what was the <u>most</u> positive contribution made by the Energy Steering Committee to the energy conservation field project in your jurisdiction?

- O Uncertain

?O

Question 8 In your opinion what was the <u>least</u> positive contribution made by the Energy Steering Committee to the energy conservation field project in your jurisdiction?

- O Uncertain

?O

Question 9 What activities by the energy consultant were most beneficial from your perspective?

O Uncertain

?O

Question 10 What activities by the energy consultant were least beneficial from your perspective?

O Uncertain

?O

Question 11 If you had the opportunity to start again would the following be of benefit for an energy conservation programme in schools in your jurisdiction?

	Yes	No	Uncertain
An Energy Steering Committee	O	O	O
An Energy Consultant	O	O	O

Question 12 Should an energy consumption standard be developed for all school buildings within your jurisdiction?

O Yes

O No

O Uncertain

Question 13 In your opinion is energy conservation consciousness important enough to be part of curriculum (course) content in most grades?

O Yes

O No

O Uncertain

Question 14 Are members of your school jurisdiction considering or preparing extended energy conservation procedures in:

	Yes	No	Uncertain
Technical retrofits	O	O	O
Motivation Management	O	O	O
Curriculum development	O	O	O
Other _____	O	O	O

Question 15 Which one energy conservation field project, either whole or in part do you believe is a model "demonstration" project?

O Could not name one

O Name and Location _____

O None considered appropriate

Question 16 Has the energy conservation field project in your jurisdiction been worthwhile?

O Uncertain

O Yes

O No

O Qualified Yes _____

O Qualified No _____

Question 17 Would you favour specifying energy consumption performance standards and operating cost sponsorship formulas in Provincial Regulations?

O Uncertain

O Yes

O No

O Qualified Yes _____

O Qualified No _____

Question 18 Was the ECFP money (excluding BQRP funds) which was provided to your jurisdiction satisfactory for your field project requirements.

O Yes
O No
O Uncertain

Question 19 Do you perceive the BQRP application process to be a simple procedure?

O Yes
O No
O Uncertain of process

Question 20 Should future services provided by an energy consultant be provided by the public or private sector.

O Public
O Private
O Uncertain

Question 21 On the bases of experience with your energy consultan. would you favour that he contribute by providing curriculum support materials?

O Yes
O No
O Uncertain

Question 22 Similarly would you favour that the energy consultant contribute by providing guidance for staff motivation?

O Yes
O No
O Uncertain

?O

Question 23 What additional criticisms or comments do you wish to make regarding the provision of energy conservation measures in school buildings?

Question 24 Do you wish to make any final comments?

Form Number: _____

APPENDIX G

COMMENTS EXPRESSED DURING INTERVIEWS WITH SENIOR SCHOOL BOARD ADMINISTRATION AND SCHOOL OFFICIALS

All questions towards which comments were addressed have been included in this appendix. Responses have been collated by zone and the source by position is noted. Anonymity has been maintained in this format.

The questions in which comments have been denoted are:

2. - Are you presently involved in any other energy conservation activities, either professionally or personnally?

7. - In your opinion what was the most positive contribution made by the Energy Steering Committee to the energy conservation field project in your jurisdiction:

8. - In your opinion what wat the least positive aspect of the Engergy Steering Committee to the energy conservation field project in your jurisdiction?

9. - What activities by the energy consultant were most beneficial from your perspective?

10. - What activities by the energy consultant were least beneficial from your perspective?

12. and 17. Combined

- Should an energy consumption standard be developed for all school buildings within your jurisdiction?

- Would you favour specifying energy consumption performance standards and operting costs sponsorship formulas in Provincial requlations?

13. - In your opinion is energy conservation consciousness important enough to be part of curriculum (course) content in most grades?

16. - Has the energy conservation field project in your jurisdiction been worthwhile?

18. - Was the Energy Conservation Field Project (ECFP) money excluding BQRP funds which was provided to your jurisdiction satisfactory for your field project requirements?

20. - Should future services provided by an energy consultant be provided by the public or private sector?

21. - On the basis of your experience with your energy consultants would you favour that he contribute by providing curriculum support materials?

22 - Similarly would you favour that the engineer energy consultants contribute by providing guidance for staff motivation?

23. - What additional criticisms or comments do you with to make regarding the provision of energy conservation measures in school buildings?

24. - Do you wish to make any final comments?

Finally, a general comment set that was generated mainly due to other questions is placed at the end of this appendix.

Question 2 Are you presently involved in any other energy conservation activities, either professionally or personally?

For those who answered "Yes"

ZONE 1

POSITION	COMMENTS
Administrator	Planning to retrofit own home, for example storm windows, upgrading insulation and installing a fireplace.
Administrator	Involved in energy conservation in the home and in developing a school division energy conservation policy.
Administrator	Involved in developing energy policy for home school division.
Administrator	Personal life style
Administrator	Have been involved in energy conservation a number of years in the home and at school.
Administrator	Practices energy conservation in the home, for example upgrading insulation and lower thermostat settings.
Administrator	Planning to upgrade home
Principal	Converting patio into sun room
Principal	Personally involved in energy conservation in home, for example lights and energy efficient car.
Principal	Not as yet involved in energy conservation but very interested in converting home to solar.

ZONE 2

POSITION	COMMENTS
Principal	Attended a SEED's workshop.
Principal	House has some measures of energy conservation.
Principal	The recreation board of which I am a member has insulated the arena.
Principal	Home measures.
Teacher	Other school functions.

Teacher	Attended an "in-service" in social studies regarding energy conservation. House has been built with styrofoam on outside of basement wall, 2"x6" stud construction, sealed vapour barrier, hot water heating, insulating batts in ceiling plus blown insulation; and hot water is stored beneath cement floor in basement.

ZONE 3

POSITION	COMMENTS
Administrator	Involved in an energy conservation programme in the whole district to upgrade maintenance and change attitudes towards energy conservation.
Administrator	Involved in an energy conservation project in whole district with respect to motivational measures.
Principal	Home measures
Principal	Involved in home energy audit and generally increasing personal awareness in subject area.
Teacher	Used the federal grant program CHIP to upgrade insulation in home.

ZONE 4

POSITION	COMMENTS
Administrator	Involved in energy conservation school design using computer analysis. This has been a direct result of the energy conservation retrofit project.
Administrator	Home lighting and domestic hot water use has been reduced.
Administrator	Before and after the field project - blocking windows, reroofing and water consumption restraints.
Administrator	When the energy consultant leaves his activities will revert to me.
Principal	Home insulation.
Principal	A wood fired furnance and a water meter have been added to house.
Principal	Insulation in the home attic has been acquired through the CHIP program.
Teacher	I have become the energy resource person for the school.

ZONE 5

POSITION	COMMENTS
Administrator	In the capacity as a alderman with the city involved with energy research, coal gasification studies and generally looking at energy conservation at the municipal level.
Administrator	Starting own business to build energy efficient homes.
Administrator	Involved in developing energy conservation curriculum units for grades 4, 5, and 6.
Administrator	Involved in the dissemination of information on energy conservation particularly with respect to curriculum. Involved in developing an elementary science handbook with energy conservation concepts.
Administrator	Insulating attic in home.
Principal	Home measures.
Principal	Home measures.
Principal	In capacity as an alderman with the city involved in several projects with respect to energy conservation.
Principal	Upgrading home.
Principal	Home measures
Teacher	Incorporating energy conservation into high school science courses

Question 7 In your opinion what was the most positive contribution made by the Energy Steering Committee to the energy conservation field project in your jurisdiction?

ZONE 1

POSITION	COMMENTS
Administrator	It established priorities.
Administrator	It coordinated the energy conservation program with staff and students.
Administrator	Involvement of the custodian staff
Administrator	Education of teachers and students.
Administrator	Control of the programme through approval of projects.
Administrator	Support to the energy consultant.
Administrator	Information dissemination to staff of the schools.
Administrator	Coordination of the project.
Administrator	Enthusiasm for the project by committee members.
Administrator	Commitment of committee members to the project.
Administrator	Organization of the various parts of the project.
Administrator	Involvement in the committee raised awareness of the district personnel due to the networking of the ideas that result from the cross fertilization of people from different levels in the school system.
Administrator	Committee support to the consultant.
Administrator	The committee resulted in an awareness among more people on what can be done with respect to energy conservation.
Administrator	The committee's moral support for the project.
Principal	Coordination of the project.
Principal	The committee provided information, i.e. films and brochures which were very beneficial.

ZONE 2

POSITION	COMMENTS
Administrator	It was an information source.
Administrator	It met twice monthly.
Administrator	Acted as an information exchange. The process recognized different jurisdictional elements. Ideas were translated to the school level rather than imposed and the energy consultant worked with that approach.
Administrator	The fact that a Steering Committee was present. It provided an awareness to the Board.
Principal	Did not know who was a member of the committee.
Principal	It created an awareness that was transmitted via our representative to the teachers in our school.

ZONE 3

POSITION	COMMENTS
Administrator	The committee's direction given to the energy consultant.
Administrator	Liason between the energy consultant and staff.
Administrator	Budget control.
Administrator	The ability of the committee to keep up the project momentum.
Administrator	The function of the committee to continually review and update project status.
Principal	The Energy Steering Committee served the purpose of motivating teachers.
Principal	It was good to have a forum to voice problems connected with implementation.

ZONE 4

POSITION	COMMENTS
Administrator	Attitudes towards energy conservation were changed.
Administrator	Positive attitude of committee to recognize problem, then to take corrective measures.
Administrator	Communication - input always by Rocky View

Principal	Their enthusiasm has created a change of attitude that will be long term.
Principal	Curriculum material was shared.
Principal	Enthusiasm within the group created motivation that was good for staff involvement.
Teacher	Many meetings were geared to Energy Day in schools.

ZONE 5

POSITION	COMMENTS
Administrator	It gave the project drive and momentum.
Administrator	Teacher involvement in the committee.
Administrator	The enthusiasm of the committee members.
Administrator	Teacher involvement in the committe.
Administrator	It was a forum to keep the school board informed of the project progress.
Administrator	Decision making regarding construction in the schools.
Administrator	The coordinating function between the technical and motivational aspects of the project.
Administrator	Involvement of the teachers with the central administrative office.
Principal	It got the project off to a good start.
Principal	The committee members were generally amiable and the committee worked well together.
Principal	It was started on its own volation before the field project was initiated by Alberta Education.
Principal	It coordinated the project.
Principal	The regular meetings were important to school staff.
Teacher	It coordinated project activities throughout the school system.
Teacher	It compiled books on energy in all subject areas.
Teacher	The regular meetings were essential for maintaining the project.

Teacher	It brought personnel from different levels in the school system together around an area of common concern.

Question 8 In your opinion what was the least positive aspect of the Energy Steering Committee to the energy conservation field project in your jurisdiction?

ZONE 1

POSITION	COMMENTS
Administrator	It was too time consuming
Administrator	It had a negative effect on staff morale.
Administrator	There was a lack of interest among committee members unless there was a problem.
Administrator	The committee was unable to make decisions since the school board had the decision making power with respect to the project.
Administrator	Regular meetings were needed at the implementation stage of the project.
Administrator	The time involvement at the beginning of the project was too great but too few meetings were held at the end of the project due to a change in the energy consultant. The tendency of committee members to fixate on personal favorite aspects of the project.
Administrator	Lack of representatives on the committee from each school involved in the project.
Administrator	With respect to an energy steering committee it should be revamped and not just energy related totally but oriented towards a total function of the facility.
Principal	We do not need a sense of direction proceded by a steering committee and hence in the future we would not need one.
Principal	Lack of coordination of retrofit timing resulted in classes having to be stopped when work was in progress.
Principal	School staff perceived a lack of committee priorities.
Principal	It was not a success due to a lack of direction.
Principal	Lack of leadership. Terms of reference should be developed on how to implement a project.
Principal	Staff motivation would have been more effective if motivational measures were implemented at staff level by the committee.
Principal	The committee did not prepare study units that could be used by teachers.

ZONE 2

POSITION	COMMENTS
Administrator	The general inactivity of the committee. Meetings were held infrequently and other meetings had priority. Local content and commitment were lacking.
Administrator	The committee was not available for Phil Cox totally due to other commitments. Phil was available for the committee but it did not do enough justice to Phil's programme.
Administrator	Things were left in Phil Cox's hands. He did not receive good cooperation from (this) administrative (committee) because they did not view his work as a priority.
Administrator	Time involved in committee work (was too much).
Teacher	Some material was too elementary.

ZONE 3

POSITION	COMMENTS
Principal	More curriculum oriented staff should be represented on the committee.
Principal	Several principals involved in the project did not know of the committee's membership or activities.

ZONE 4

POSITION	COMMENTS
Administrator	The attitudes of some people until they were convinced. Now they are.
Principal	There was no interaction between principal and committee.
Principal	The lack of credibility in the decision making has eroded our (good) attitude towards the Division.
Principal	The energy consultant sat in on our curriculum sub-committee meetings but it is unknown whether the energy consultant relayed the information to staff at the Division level.
Principal	No contact by principal.

Principal	With respect to the energy steering committee there should be more input by the principal and the principal should have a say about what will be done.

ZONE 5

POSITION	COMMENTS
Administrator	Lack of public relations and communication.
Administrator	Public awareness should have been addressed by the committee from the start of the project.
Administrator	It met too often which resulted in a waste of time. The timing of meetings should be flexible to call meetings only when required.
Principal	Staff are too bogged down with committees already and do not need additional ones.
Principal	The time committment required for regular meetings is too much, however, the irregular meetings resulted in information gaps.
Teacher	It was initially confused about the project perameters and goals.
Teacher	It did not do very well on the curriculum component of the project.
Teacher	It did not make the energy consultant aware of how to approach teachers before sending him into the field. Meetings should not be held after school but during school hours and involve teacher release time.

Question 9 What activities by the energy consultant were most beneficial from your perspective?

ZONE 1

POSITION	COMMENTS
Administrator	His problem solving capabilities and implementation skills.
Administrator	He was tremendous in all aspects.
Administrator	Technical expertise transferred to school board staff.
Administrator	His trouble shooting capabilities.
Administrator	His enthusiasm for the project.
Administrator	His trouble shooting capabilities.
Administrator	He did physical work (i.e. installation of retrofits) as well as the paper work required for the project.
Administrator	Supplying metric conversion information.
Administrator	His technical expertise helped administrators understand project.
Administrator	He helped the maintenance foreman understand energy conservation so that this knowledge could be applied to future purposes for the school board.
Administrator	His expertise in installing retrofit devices.
Administrator	His planning, installation, and supervision capabilities.
Administrator	His basic knowledge was very good.
Administrator	The consultant was trusted and his opinion carried weight in making decisions.
Administrator	He could do the construction work himself, an important attribute in an area where it was difficult to obtain contractors.
Administrator	He was a hands-on person which saved construction costs.
Administrator	His engineering services and project management.
Administrator	Leadership

Administrator	Response to questions.
Administrator	Technical expertise.
Administrator	Cooperation.
Administrator	He got involved beyond the call of duty.
Administrator	Calling meetings to share information.
Principal	He got along well with staff.
Principal	He made a potentially difficult situation very positive through his attitude.
Principal	He produced a slide tape program.
Principal	He was interested in the project.
Principal	He produced a slide tape program.
Principal	He attended staff meetings.
Principal	He was accommodating in all ways.
Principal	He explained the project to students in the classroom.
Principal	He was readily available for staff questions.
Principal	The fact that he was a catalyst for installation of energy conservation measures.
Principal	He made staff aware of energy problems.
Principal	His willingness to stop to talk to students.
Principal	The time and energy he applied to the project.
Principal	His personal education services to the staff, i.e. his eagerness to explain the purpose of retrofits.
Principal	His enthusiasm for the project made it manageable, particularly for trouble shooting.
Principal	His dissemination of information.
Principal	His regular visits to the school to explain the project.
Principal	The dissemination of information.

ZONE 2

POSITION	COMMENTS
Administrator	Individual was technically proficient.
Administrator	More than $92,000 was acquired for retrofitting. We would not have done that amount of retrofitting without Phil Cox's work.
Administrator	Knowledge was transferred.
Administator	Board needed the expertise. There was an advantage at the local level.
Administrator	Technical expertise was available. Some suggestions for energy conservation were tried on the energy consultant.
Principal	Went to staff meetings. Provided some curriculum materials.
Principal	There is an advantage to having one individual (eg) the energy consultant, to take the blame or to have items done but do not mix the roles (eg) technical competence versus other facets.
Principal	Energy consultant was willing to spend time with the principal and explain how system operated.
Principal	Phil got the programme started which involved a "B" option in curriculum at junior high level.
Principal	Good curriculum activities by Phil Cox and teachers were involved. Good reference materials.
Principal	Energy consultant was accessible and provided large amounts of material.
Principal	When project was initiated the energy consultant was asked to brief school staff. He did drop in on many occassions.
Principal	Phil Cox tried to correct problems quickly.
Teacher	Display at Fort Kent school was excellent, although not many people attended.
Teacher	Initial meetings were organized and information was available. Also Dan Stoker's work was excellent in motivation and curriculum.
Teacher	Materials were always available. Phil Cox attended and provided materials at a science fair.
Teacher	Good materials were provided by the energy consultant and they included background statistics and calculations.
Teacher	Energy consultant was concerned about the situation.

ZONE 3

POSITION	COMMENTS
Administrator	His involvement with staff and teachers.
Administrator	The fact that he upgraded the custodial staff.
Administrator	The fact that the consultant was an outside agent to the board resulted in his opinion being more persuasive in decision making with the school board than if the Energy Steering Committee stood alone.
Administrator	His technical expertise.
Administrator	The fact that the consultant was able to devote his full attention and time to the project.
Administrator	The fact that he was sociable in dealing with the public.
Principal	He made staff aware of energy conservation in the school.
Principal	His technical abilities.
Principal	The in-school services.
Principal	His explanation of the programme to staff.
Principal	The fact that he involved the custodial staff in the project.
Principal	His cooperation.
Principal	His supervision of the contractors.
Principal	His explanation of the program to staff.
Principal	The fact that he involved the custodial staff in the project.
Principal	The establishment of baseline consumption data.
Principal	His sound ideas for technical retrofits.
Principal	His coordination of meetings.
Teacher	The fact that he kept staff abreast of the project.
Teacher	The presentation and materials he provided.
Teacher	The fact that he involved students in meter reading.
Teacher	The fact that he provided a questionnaire to evaluate home energy use.

ZONE 4

POSITION	COMMENTS
Administrator	Information.
Administrator	Available to answer questions.
Administrator	Very positive benefit.
Administrator	His knowledge, research time and contact were good.
Principal	Following (IR) scan, he returned with information on savings.
Principal	Energy consultant was always available.
Principal	Communication was excellent
Principal	The energy consultant was enthusiastic about his job. The heat sensor was a good energy audit technique.
Principal	Energy consultant was aware of goal of programme.
Principal	Good work by energy consultant.
Teacher	Focussed on Dan Stoker's work.
Teacher	Dan Stoker was superb.

ZONE 5

POSITION	COMMENTS
Administrator	His technical expertise.
Administrator	The fact that he monitored the project process.
Administrator	His assessment of retrofit requirements.
Administrator	His technical expertise.
Administrator	The fact that he kept the Energy Steering Committee informed on the effects of the project.
Administrator	His technical expertise.
Administrator	His ability to talk to people in a quiet way to motivate them, i.e. he did not push people.
Administrator	He was easy to get along with.
Administrator	His enthusiasm for the project.

Administrator	He worked well with people.
Administrator	He got teachers and students involved in the project.
Administrator	His cooperative attitude.
Administrator	His explanations to the Energy Steering Committee and to the school board.
Administrator	He had got the staff involved with the project at the beginning.
Administrator	He an ability to make everyone happy.
Administrator	He had a good personality and therefore was very well accepted by staff.
Principal	His coordination of the project.
Principal	His recommendations to the school and to the school board to help to set project priorities in favor of teachers over other interest groups.
Principal	His technical expertise.
Principal	The fact that he was from outside the school board jurisdiction meant he could give an objective assessment.
Principal	His identification of problem areas.
Principal	The fact that he accomplished what he set out to do.
Principal	He was very effective in a quiet way.
Principal	He acted on problems right a way.
Principal	He never fought with staff.
Principal	His personal visits to the school and demonstration of the energy conservation measures.
Principal	His work with the students in classes.
Principal	His attributes were a key to the success of the project.
Principal	He made staff and students aware of what was going on with respect to the project.
Principal	His personal visits to the school.
Principal	His efforts to save energy.
Principal	He was an important resource person for the Energy Steering Committee.

Principal	His outside perspective on needs.
Principal	His technical expertise.
Principapl	He came to the school frequently and allowed frustrations to be vented and tried to help.
Principal	His presentation techniques where very good.
Teacher	He worked well with the custodians.
Teacher	He helped in compiling a curriculum.
Teacher	He acted as resource person on energy conservation.

Question 10 What activities by the energy consultant were <u>least</u> beneficial from your perspective?

ZONE 1

POSITION	COMMENTS
Administrator	His lack of contact with the students.
Administrator	He did not do much for the curriculum aspect of the project.
Administrator	He did some of the construction work on his own without proper training, although this did save money.
Administrator	The fact that he did not focus on physical plant management practices. A greater focus was needed in this area in the project. This focus should be beyond policy development, i.e. a development of an energy ma.ıagement handbook.
Principal	He carried work out during class hours.
Principal	His explanations were to complex.
Principal	He should have consulted with staff before proceeding with work.
Principal	He should have instructed staff on the operation procedures of systems installed in the school particularly the automatic control systems. He did not inform staff of what had been done in the school. He should have asked staff what problems had been identified in the school.
Principal	He did work himself and it was not always up to code.
Principal	His lack of communication.
Principal	He was too busy so he could not respond to the bugs in the system soon enough.
Principal	He should have given more information on the operation of time clocks so that staff could respond to emergencies.
Principal	He placed too much emphasis on the technical aspects of the project.
Principal	The public relation activities that the energy consultant carried out i.e. the open house were a waste of time. (In this instance the open house was held within a different school district and the parents and teachers felt it did not relate to them).

ZONE 2

POSITION	COMMENTS
Administrator	Curriculum component did not develop to ideal extent that energy consultant would have liked.
Administrator	Curriculum and staff motivation fell short but that was due to the shortfall in distribution (eg) 90% retrofitting. Cold Lake School was a good project example.
Administrator	No idea of teacher development.
Principal	Did not explain to staff about programme. Little P.R. work, hence a communications shortfall.
Principal	The energy consultant had too many bosses, (eg.) the Board and the Department of Education and was accountable for the planning and finance. He had to learn on the job and gave the impression that he had to carry out and respond to all school's needs.
Principal	Inconvenience created via technical problems.
Principal	Not enough time spent in preparing people for technical side.
Principal	Staff resented that they were to be more efficient. Energy consultant should recall courtesies of checking into office when arriving at school. The energy consultant could have been more approachable by grade teachers.
Principal	There may have been difficulties in convincing Board to proceed quickly.
Teacher	Did not know what energy consultant did.
Teacher	Not strong in motivation
Teacher	Not always available.
Teacher	Not all features wanted were obtained (eg) window blockings.

ZONE 3

POSITION	COMMENTS
Administrator	Some school principals resented the energy consultant because he represented a top-down approach to administration of energy conservation.
Principal	His lack of communication skills.

Principal	His dictorial personality created negative staff feelings towards program.
Principal	Lack of speaking skills resulted in a lack of influence among staff members.
Principal	His language problem.
Principal	The fact that he did not know the personalities of teachers resulted in misdirected motivational measures.
Principal	His lack of curriculum involvement.
Principal	His spelling.
Teacher	He did not spend enough time in schools.

ZONE 4

POSITION	COMMENTS
Administrator	Not enough research available locally. It is difficult to be involved in retrofit and leg work. Funds mainly went into technical, not technical component.
Principal	Described computer printout to principal.
Principal	The energy consultant was here last year and concentrated on lighting. There was no opportunity for participation by school staff nor anything formal.
Principal	There was a communications gap.
Principal	"Jeff's" computer has been blamed for faults in the system. What happens when Jeff Bannard leaves? Does it then become "Honeywell's" computer?
Principal	There was no followup this year compared to last and this has not assisted our school's dedication to the topic.
Principal	The energy consultant would turn people off (due to inappropriate) communications. The caretaker is not interested in speaking to him. Also there has not been a follow-up.
Principal	Energy consultant was available twice and very little contact was made beyond the teacher involved with receiving materials. There was a lack of consultation regarding end result in terms of technical items, as well as relation to curriculum programme and school activities.

Principal	A better public relations with teachers could have been entertained. This could have been extended to students and hence community.
Principal	There were not any formal procedures for liaison and more liaison with the principal is required. The energy consultant would show up without an appointment. Further we have a micro processor and nothing has been done to caulk the windows and insulate the doors.
Teacher	Energy consultant was not an educator.
Teacher	This was a band-aid approach by the engineer. Teachers are not convinced that solution was adequate. Work was not done (eg) windows were not fixed and pressure tested.

ZONE 5

POSITION	COMMENTS
Administrator	The consultant should have been prepared by Alberta Education in the communication of educational aspects of the project. i.e. Training in communication with professional teachers.
Administrator	Lack of consultation with staff regarding decision making. If staff are consulted in decision making and are involved and informed they will be more tolerant of problems.
Principal	He did not give enough lead time for showcase schools.
Principal	He was not in the schools enough.
Principal	He took to long to rectify a problem with the time clock which resulted in some very cold classrooms and annoyed teachers and staff. He was not involved in the schools enough especially in the second year of the project. The role of the energy consultant could have been fulfilled by maintenance personnel.
Principal	His involving students to read energy meters was not of much value.
Teacher	In staff meetings at the beginning of the project, he was a little to straight forward and came without proper preparation.
Teacher	He did not disseminate enough information.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - has considered it; discussed incentive program but not followed up to it.
Principal	Yes - motivational charts could be developed; make information available from the energy consultant.
Principal	No - it would be hard to define a standard when there is a joint use of the school in a community school context; it also removes human use of the facilities.
Principal	Yes - children could compare standard to their own home.
Principal	Uncertain - had not thought about it.
Teacher	No - becuase windows would be replaced with walls and there is still loss of air.
Teacher	Yes - when teaching students you must set a goal.

ZONE 3

POSITION	COMMENTS
Administrator	Yes - for new buildings but hard to implement in old buildings.
Principal	No - too varied.
Principal	No - buildings are to varied. Yes - if implemented with a guide book which contain guidelines for running the school. If standards were exceeded one could then investigate and find out why.
Principal	Yes - although it would be difficult to implement due to different use in school eg. industrial area.
Principal	No - standards are not feasible with the community school concept due to evening use.
Principal	Uncertain.
Principal	Difficult to implement due to the fact each school has different needs and requirements.
Principal	Yes - standards would make the people aware of where a school rates.
Principal	Yes - only if penalties were not imposed for and standards were only used as an objective. Due to the variety in school use eg. night school, parks and recreation use of the school and weather varying from year to year.

Teacher	Yes - its standards is based on average but not peak energy use.
Principal	Yes - if based on building standards and not energy use since the school is used five nights a week by outside people. It would be difficult to establish baseline consumption figures.
Teacher	No - hard to implement due to the variety of use and weather.
Teacher	No - schools are to varied in construction and the life cycle of the school would have to be taken into account re: cost factor of upgrading.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - if set who would pay for it; or would have to be very cost conscious and hence this whole impact.
Administrator	Yes - this should be difficult to do across the division; a standard should be a guide and it must be realized that this may be hard to maintain based on community attitudes when one views farm communities attitudes versus urban attitudes.
Administrator	Uncertain.
Principal	Yes - extra curricular use to schools would have to be accounted for and in our case the gym is used at various rates; hence the formula would have to be complex.
Principal	Yes - if restricotn would make people aware it would be appropriate but no-one sees the seriousness of it.
Principal	No - could not do it on á sample of schools because school may be shut-down if standard is exceeded; there may be a fear that realistic figures would not be generated; how do you adjust these figure from year to year?
Principal	Yes - once only and one should not decrease the standard annually.
Teacher	No - specific buildings and seasonal requirements for energy would be difficult to identify; conception perhaps would have to be averaged over a three month period.

ZONE 5

POSITION	COMMENTS
Administrator	Yes - standards should be the final intent of the project.
Administrator	Yes - 100%. The big stick approach works and gives the board leverage over staff.

Administrator	Yes - only if individual standards for each building depending on your construction and use are developed.
Administrator	Yes - for new construction.
Administrator	No - standards are not possible due to the wide variety in the school buildings. Standards will create a problem of unacceptance. Accept different targets for each school.
Administrator	Yes - only if they take into account varieties in buildings.
Principal	Yes - if take into account variables in weather.
Principal	No - too much variety in school buildings and in programming.
Principal	No - too much variety in school buildings. Standards should be used as guideline only and be used with great care.
Principal	Yes - standards have to be area specific.
Principal	Yes - standards should be implemented only after a transition period of pilot project. Standards would make people more aware of energy use and therefore they would make better decisions.
Principal	No - standards could not respond to weather.
Principal	No - too much variety in buildings stock. Perhaps implement standards for new schools.
Principal	Yes - but standards are not very practical due to variations in school and standards should be sensitive to variations in climatic conditions.
Principal	Yes - standards would act as an incentive for new buildings.
Principal	Yes - only if variations were taken into account.
Teacher	Yes - only if standards take into account difference in use and construction.

Question 17 Would you favour specifying energy consumption performance standards and operating costs sponsorship formulas in Provincial regulations?

ZONE 1

POSITION	COMMENTS
Administrator	Qualified yes. Only if accompanied by appropriate funding. Two options could be through BQRP and through an incentive grants program, but this would be hard to implement.
Administrator	Qualified yes. Only if climate and building factors are taken into account.
Administrator	Qualified yes. For new construction only. Performance standards for retrofits would have to be flexible. For example portables are less efficient than main buildings.
Administrator	Qualified yes. New buildings only. It would be hard to retrofit.
Administrator	Qualified yes. If new construction. A program for additions and old buildings would be hard to implements.
Administrator	Qualified yes. For new construction.
Administrator	Qualified yes. If used as a guideline and goal only and took into account regional disparities and age of buildings. A consumption standard is hard to implement due to weather factors and would be hard to make equitable between jurisdictions. The standard and the add base for funding of building upgrading.
Administrator	No - due to variety in building stock.
Administrator	Qualified yes. Performance standards are a good idea but I am opposed to implementation to regulations due to the fact that program standards imposed through funding programs create complex regulations due to the controls and pulls by the auditor general's office. One must be able to prove standards were met. Other approaches to regulations are to provide a consulting service and sell pay back to the boards. This question raises a more general one and that is to what extent should granting system be utilized to implement the department's objectives. The problem is that an increase in the accountability in this process results in a decrease in cost effectiveness due to the fact that technical administration requirements are increased as control and accountability are increased. A solution is to be found in the middle ground i.e., no control of BQRP projects under a certain limit. For future reference the grant simplification and deregulation committee chairman Bill Duke planning and research.

Administrator	Qualified yes. If standards are basic and administration process is simple without red tape.
Principal	Qualified yes. If different conditions of building stock are met by the standard.
Principal	Qualified yes. Use standards as guidelines only.
Principal	Yes - but funding to meet standards has to be in place, particularly for older buildings, and schools that have had additions that have been bauched.
Principal	Qualified yes. For new schools only.
Principal	Qualified yes. New schools.
Principal	Qualified yes. Only if funding is also available.
Principal	Qualified yes. For new schools and with flexibility for old schools.

ZONE 2

POSITION	COMMENTS
Administrator	Qualified yes - with hard line rules eg., a standard set without flexibility will be a problem.
Administrator	Qualified yes - other possibility - have an internal motivation to achieving that standard.
Administrator	Qualified yes - with hard line rules eg., a standard set without flexibility will be a problem.
Administrator	No - joint use agreements could be limiting and would be tied into the use of the facility therefore it may not be as versatile as it could be.
Principal	Qualified yes - J.Q Public has a vested interest and hence schools should be acocuntable for school energy use.
Principal	Qualified No - guideline yes but a standard should not be tied into costing because cost is not important; program could go awry eg., could be cut to say for books for example; use window closing as an example - here we have a human value versus energy saved and obviously the energy saved would be viewed as the more important guideline.
Principal	Yes - our principals' meeting with the superintendent discussed this - especially if money was saved in utility bills then the school would see some dirctly.

Principal	Uncertain - had not thought about it however comfort must be present in terms of heating and lighting; dollars saved are not important comfort is in terms of teaching; an awareness program will have children cut the lights off when required.
Principal	With respect to the energy consumption performance standards and cost formulas this was proposed at a principal's meeting with the superintendent recently - we still support the idea that if the utility bills decrease the dollars should be given back to the school.
Principal	Qualified yes - schools not involved in operating costs thus every organization would have to me made.
Principal	Qualified yes - include after hours use of school and formula.
Principal	With respect to the energy consumption performance standards and cost formulas this was proposed at a principal's meeting with the superintendent recently - we still support the idea that if the utility bills decrease the dollars should be given back to the school.
Teacher	Qualified no - A target for which to strive but not tied into regulations and costs.

ZONE 3

POSITION	COMMENTS
Administrator	No - energy conservation should be implemented at the board level through by-laws and motions. BQRP in such programs are to wound in regulations.
Principal	Uncertain.
Principal	Qualified yes. If based on existing situation i.e., poor quality buildings in rural areas. The emphasis should be on the retrofits.
Principal	Qualified yes. If not over legislated.
Principal	Qualified yes. Some standards set.
Principal	Uncertain.
Principal	Qualified no. A specific issue would have to be addressed before one could answer that question.
Principal	Qualified yes. Only if there was a high enough incentive i.e., 100% provincial funding.
Teacher	Qualified yes. Provided the standards were flexible enough to accommodate a variety in schools.

ZONE 4

POSITION	COMMENTS
Administrator	Qualified yes - use schools certainly should have this, however in the case of older schools one would have to review the retrofits again and discuss them in terms of costs and paybacks. The school buildings branch should check all used schools insulation values; every new school should have an intra-red scan and this should be required on all schools in the future.
Administrator	No - because standards are hard to find.
Administrator	Qualified No - school must be taken on an individual basis and even then it cannot be determined.
Administrator	Yes - this is an excellent idea and will force them to do something; make the standards fixed and reasonable and have input from the School Board for the standard.
Principal	Qualified yes - if the board and Alberta Education were to cost share.
Principal	Qualified No - unless retrofit is a cost efficient system then one could define a standard; massive refitting may be required and some items may be politically sensitive.
Principal	Qualified yes - with appropriate formulae.
Principal	Qualified yes - all factors would have to be known for the formula.
Principal	Qualified yes - focus for public buildings should be identified because I forsee that at the government later too comfortable.
Principal	Qualified no - we would want to know the factor; our school is used as a community school and therefore there are many after hours functions; the money saved should be returned to the school itself otherwise there is no incentive.
Principal	No - formula would require annual amending procedures.
Principal	Qualified yes - I've never given it much thought.
Teacher	Qualified yes - if savings went to the school and not the board it would be appropriate.

ZONE 5

POSITION	COMMENTS
Administrator	Qualified yes. As standards as guidelines only, to let local conditions prevail.

Administrator	Yes - but have standards as guidelines.
Administrator	Qualified yes. For new construction, and for retrofits with funding formula.
Administrator	Qualified yes. If standards took into account local factors i.e., solar in Medicine Hat, heating with wood in northern regions. And if emphasis was placed in new construction.
Administrator	Qualified yes. In new construction with funding and inretrofits only with incentive and support from province.
Principal	No - due to too many variables.
Principal	No - once standards are set they can destroy positive attitudes of staff. Use the current practice of basing energy conservation goals on the three-year consumption average.
Principal	Qualified yes. As long as the standard is not a provincial norm and is based on cost benefit and not energy consumption.
Principal	Qualified yes. Only after initial program to introduce idea of energy conservation.
Principal	Qualified yes. If standards are used only as guidelines.
Principal	Yes - standards would act as guidance from the top.
Principal	Qualified yes. If used as guideline and not based on a provincial norm but based on the individual difference in buildings.
Principal	Qualified no. Technical aspects should be left to the local area but with provincial guidelines.
Teacher	Qualified yes. But very difficult to implement due to public use and outside variables in schools.
Teacher	Qualified no. Standards would not create enthusiasms due to top-down approach.

Question 13 In your opinion is energy conservation consciousness important enough to be part of curriculum (course) content in most grades?

ZONE 1

POSITION	COMMENTS
Administrator	Yes - start instruction in the early grades -the younger your start the easier it is to engender attitudes; and place the least emphasis in the high school programme.
Administrator	Yes - energy conservation must be taught in schools at most grade levels not just up to grade six.
Administrator	Yes - energy conservation is in the curriculum now but is not emphasized enough. It could be intregrated as part of the science, social studies (values in attitudes), economics (at national level) and mathematics (budgeting). Energy conservation could be a challenge for divergent and creative students to come up with alternative energy supplies and usages. One barrier to implementing energy conservation in the curriculum is the lack of materials available to purchase. Alberta Education should develop materials to overcome this short fall. Suggestions include documenting student projects from science fairs across Canada and the United States, and producing a video or film on energy conservation since these media are the most used as teacher aids.
Administrator	Yes - the current curriculum ignores the conserver ethic.
Aministrator	Yes - energy conservation should be part of other courses and part of the every day life of the schools i.e. attitudes towards used of energy in schools.
Administrator	Yes - in some grades.
Administrator	Yes - as part of science courses i.e. as a chapter of the science programme.
Principal	Yes - from grades 1 through 10.
Principal	Yes - particularly in science area and particularly in the earlier grades since the younger you start a student the easier it is to engender attidudes.
Principal	Yes - energy conservation can be fitted into other subject areas i.e. science and social studies. However, they should be a suggested curriculum units.
Principal	Yes - at several grades from grades 1 through 12 with emphasis on the elementary grades.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - not through a teaching unit on energy conservation in Science or Social Studies but the entire principle of energy conservation could be subtly introduced. This would hence not appear as an additional load on teachers who are already overloaded.
Administrator	Yes - if given in all grades there could be a major problem with course material; it may be appropriate to have materials provided in more than one language (Cree).
Principal	Yes - we have built it into all grades up to the junior high level now we have units in Science and Social Studies.
Principal	No - but it is available in home economics classes and science classes.
Principal	No - but it could be tied in with current events options.
Principal	Yes - this could be introduced through a science programme which is new.
Principal	Yes (grades taught in this school ECS-9).
Principal	Yes - not enough in the programme now (his grades ECS-9).
Principal	Yes (grades ECS-9).
Principal	Yes - curriculum is most important part of this exercise.
Principal	Yes - our grades 4-6 already have an energy conservation component in their curriculum.
Principal	Yes - the SEEDS material could be incorporated with subjects such as science.
Teacher	Yes - Because the building is limited by certain energy control systems this would limit certain motivation measures.
Teacher	Uncertain - something in the curriculum would have to go.
Teacher	Yes - only way to work it.
Teacher	Yes - to varying degrees with more sophistication in higher grades.

ZONE 3

POSITION	COMMENTS
Principal	Yes - the subject area should vary in depth from grade to grade and should not be over saturated.
Principal	Yes - especially and the elementary level.
Principal	Yes - its inclusion would be of a benefit to students.
Principal	Yes - although energy conservation is a low priority.
Principal	Yes - as part of the existing curriculum and not as its own subject area.
Teacher	Yes - especially in early grades for attitude formation but not in high school. Students in high school adopt causes for the sake of adopting causes. Energy conservation should also be taught to adults.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - started elementary school only and note this is a lead.
Administrator	Yes - start teaching in grade 1.
Administrator	No - teach at the elementary level only.
Administrator	No - it would be a waste of time in the upper grades; there are other areas by which informa-tion is provided such as the media/press and in deed through the consumer who is cost conscious - this is the way to achieve energy conservation; children must ask for this component then they will want to learn it and it would be effective in lower grades.
Principal	No - it is taught in some sciences, however the time frame in science is too short; it would be more appropriate in elementary grades because of the development attitudes.
Principal	Yes - and it is now being taught in each science grades 6-9; might add that winds in our location create a problem and hence we cannot control our heating voluntarily; we can only control our power (light) consumption.
Principal	Uncertain - we would be unsuccessful in having students look at it.
Principal	Yes - there is so many new items in the course now and we note that not too many items have been dropped.

Principal	Yes - this is available in our new science programme in the school (grades ECS-6).
Teacher	Yes - this is already built in and we have up to one month regarding energy conservation and energy consciousness in our curriculum.

ZONE 5

POSITION	COMMENTS
Administrator	Yes - absolutely.
Administrator	Yes - as part of other subject areas.
Administrator	Yes - in some form. Information on energy conservation should be sequenced with some aspect in every grade.
Administrator	Yes - in science and social studies with the emphasis at the elementary and junior high levels only. Senior high specialization does not lend itself to subject matter but senior high science courses 1121 and 1131 could be used to instruct energy conservation.
Principal	It is already in the science and social studies programmes.
Principal	Yes - its inclusion is important for attitude change. It should be brought in the main stream of the curriculum and not introduced in a hap-hazard way as it was through the project.
Principal	Yes - it should be integrated with other subjects i.e. science and social studies and not inserted into the curriculum as a separate subject.
Principal	Yes - energy conservation should have an organized progression of ideas within the curriculum.
Principal	Yes - the school already offers junior high (grade 7 and 8) option called conservation.
Teacher	Yes - as an aspect of the existing curriculum instead of a separate course i.e. problems in mathematics could be energy related.
Teacher	Yes - but not as a separate subject but as a part of other subjects.
Teacher	Yes - but only by teachers who are enthusiastic about subject area otherwise interest will not be there and students will not be motivated for involvement.

Question 16 Has the energy conservation field project in your jurisdiction been worthwhile?

ZONE 1

POSITION	COMMENTS
Administrator	Yes - the project has cut costs but energy conservation measures must go beyond the limits of this one project for example humidifiers and roof insulation should be installed.
Administrator	Yes - very worth while.
Administrator	Yes - very much so.
Administrator	Qualified no. There was no value for the money expended in this project because night set backs where done manually before and automatic set backs won't work completely without an expanded programme that includes insulation with set backs.
Administrator	Yes - invaluable.
Administrator	Qualified yes. To soon to tell pay backs on retrofits but the educational aspects were a success.
Principal	Qualified yes. Technically worthwhile but only worthwhile in some aspects of the educational part of the project.
Principal	Qualified yes. There was more work to do in the educational aspects.

ZONE 2

POSITION	COMMENTS
Principal	Qualfied Yes - would like to see that payback is guaranteed.
Administrator	Qualified Yes - the degree of success is unknown yet.
Principal	Qualified No - little comfort has been achieved at our school. The question that I ask is - can you run a school system by the superintendents concerns (equal human concerns) or by the secretary-treasurers concerns (equals dollar concerns)?
Principal	Qualified No - this project has caused consternation in the school; we have been disappointed by car plug-ins and the cycling; programming of night set-backs has not been appropriate for school use; the principal has not been in the school to "trip out" thermostats when required, eg., too few people know about the school equipment.

Principal	Yes - we would note that this year the school sends in its gas and power consump-tion however the water consumption is not monitored.
Teacher	Uncertain - no final data hence I cannot say.
ECS Teacher	Qualified Yes - dollar savings have already been noted; I would like to see a solar energy content such as a solar home especially for displays.
Principal	Qualified No - not enough servicing of teachers; retrofits do not work and frustrate our teachers; the janitors are frustrated because they do not know what to do - they are retired farmers.
Principal	Qualified Yes - this has been an eye-opener of a project and we are commencing the blocking of windows in the gym this summer which will be a continuation of the programme.

ZONE 3

POSITION	COMMENTS
Principal	Yes - if one considers the amount of energy saved.
Principal	Qualified yes. There if a problem in that the major problems connected with energy loss though the building envelope were not corrected in this project and this has resulted in an lack of motivation. Teachers and students see the energy waste in the building and do not feel motivated to conserve themselves.
Principal	Yes - the project should be done every year.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - excellent
Principal	Qualified Yes - curriculum definitely; attitudes of staff and students are good but there have been problems at the school with the technical components.
Principal	Yes - upgraded and we have decreased our energy consumption.
Principal	Qualified No - it is questionable because we do not know the costs.
Principal	Uncertain - not sufficient time to discern effectivensss of new system.

Principal	Qualified Yes - all objectives have not been met because during construction high degree of local power was consumed; a micro-processor was installed but it is not known if the installation is concluded and whether it is fully operational.

ZONE 5

POSITION	COMMENTS
Administrator	Yes - absolutely!
Administrator	Qualified yes. Funding for the curriculum part of the project was not sufficient. However just presence of the project made people more aware of energy.
	Administrator Yes - most definately.
Principal	Yes - students are more conscious of energy. The students have learned by example, when for example teachers turned off lights.
Principal	Yes - definitely
Principal	Yes - not withstanding problem with basement freezing up after heating system was retrofitted.
Principal	Uncertain to early to tell.
Principal	Qualified no. The exerise has been worthwhile but not the results.
Teacher	Qualified yes. To early to really tell.
Teacher	Qualified yes. Fans on timer create stuffiness in classrooms.
Teacher	Yes - the project had the effect of making the school board aware of some real major problems in the school buildings i.e. temperature flucuations in classrooms.

Question 18 Was the ECFP money (excluding BQRP fund) which was provided to your jurisdiction satisfactory for your field project requirements?

ZONE 1

POSITION	COMMENTS
Administrator	No - without BQRP funds and yes with BQRP funds. More emphasis should be placed on curriculum aspects.
Administrator	Yes - there seems to be enough funds although not all the bills are in yet. The exception is more funding should have been provided in the curriculum aspects of the project.
Administrator	No - without BQRP. Only one school was retrofited without the BQRP funds.
Administrator	Yes - in curriculum areas funds were sufficient.
Administrator	Yes - although if in the future pay back period for projects is extended then more money will be required.
Principal	Yes - the funding was adequate.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - more would have been appreciated.
Administrator	No - we originally had 3 jurisdictions and the money should have been based on the size of school numbers rather than maximum allocation - how were the schools selected?
Administrator	Yes - given the guidelines of the project.
Principal	No - class teachers should have been given access to more funds - in order to buy 30 small thermometers.
Principal	Uncertain - I did not know the amount of money involved.
Teacher	I understand that $100,000 has been given but only $1,000 has been available for student involvement and this included five sets of SEEDS material.
Teacher	I recognize that some money was set aside for curriculum however our assistant superintendent dealt with it.

Teacher	No - We requested 30 thermometers but did not receive them and we only received a limited supply of SEEDS material due to their high cost.

ZONE 3

POSITION	COMMENTS
Principal	No - not for the curriculum aspects of the project.
Principal	No - major building envelope modifications are needed for energy conservation.
Principal	No - more retrofit measures are required.
Principal	No - curriculum aspects need more money.

ZONE 4

POSITION	COMMENTS
Administrator	No - fairly pleased but would like more; we did use it efficiently.
Principal	Uncertain

ZONE 5

POSITION	COMMENTS
Administrator	Yes - very pleased with funding level.
Administrator	Yes - the extra funding through the BQRP really helped with the project.
Principal	Yes - the school board and province have their priorities straight on this one.
Principal	Uncertain but the Department should not spend money on energy and cut teacher back in other areas since this will adversely affect teacher morale.
Principal	Yes - for an initial project, but if the Department wants to become more serious about energy conservation then it will have to spend more money in the future since not all problems in the school were retrofitted.
Teacher	Yes - but in a system as small as Medicine Hat the entire system should be under the project instead of leaving out a few schools.

Question 19 Do you perceive the BQRP application process to be a simple procedure?

ZONE 1

POSITION	COMMENTS
Administrator	To much red tape involved in the inspection procedure.
Administrator	Inspection procedure takes too long. Inspectors will only inspect one item per trip. For example, recently an inspector would not look at broken heat exchangers because the paper work was not processed in Edmonton, although he was at the school inspecting another project. This resulted in a delay in replacing broken equipment.
Administrator	On school modernization projects, the requirement for architects adds to the total project cost due to fees. Also architects tend to be extravagant in their designs.
Administrator	Independent BQRP inspectors are unnecessary due to the fact that expertise exists at the board level, for example the maintenance supervisor.
Administrator	The process is to complicated but one can see the need for accountability.
Administrator	The BQRP is to complicated.
Administrator	The expertise required for the field project is different than that needed for the BQRP so the programmes should be kept separate.
Administrator	Funding the field project through the BQRP slowed the process down and made the process more complicated. It created more work for the energy consultants.
Administrator	The BQRP application process is too complex for small projects but is alright for larger ones. The approval for small BQRP applications should be eliminated. The field project would have been better if energy consultants could have done initial inspections.
Administrator	The district's objectives regarding BQRP are not the same as the Departments. The district's maintenance planning is based on a five year preventative maintenance programme i.e. based on need, which does not necessarily fit within BQRP guidelines. BQRP is access only when it fits the maintenance programme, making project administration awkward. The Department's

	objectives administered through BQRP incentives could create a haphazard approach to maintenance instead of a preventative maintenance programme based on a building system's approach. Two alternatives in BQRP administration procedures are as follows "a post audit system where project is done first and then grant if applied for; differential regulations a) a district with an acredited maintenance programme would have a streamlined funding process, b) otherwise regular inspection procedures would prevail on a project by project bases. This system would have a built in incentive for districts to develop preventative maintenance programmes.
Administrator	Delays in BQRP funding applications processing are a problem since they prevent construction in the summer season.
Administrator	The BQRP programme is driven by 80 cent dollars. A maintenance programme should be driven by needs. BQRP is currently a piece meal approach re add-ons to programmes. The alternative may be to have BQRP fund district level maintenance programmes, or have a funding on a school by school basis rather than on a project by project basis.
Administrator	Current inspection practices cause too much delay especially for small projects. An option would be to spot check projects under $5,000 or grant approvals on the basis of projects that had been approved previously where of a similar nature in schools of the same age and style. An example would be window closures in a certain catagory of schools.
Principal	The BQRP process takes to much time.
Principal	BQRP is as simple as it can be.
Principal	The process is too detailed but accountability is required.

ZONE 2

POSITION	COMMENTS
Administrator	No - there are many BQRP applications.
Administrator	Yes - the application presents a problem sometimes; the follow-up is good; the rationale for BQRP is good particularly when the maximum can be 80%; we are running at approximately 74% last year.
Administrator	No - would like to see more building inspectors; the existing ones are good.
Administrator	Uncertain of process - Board does not have any money in the amount of BQRP allocation is not known.

Principal	The BQRP was part of a long-range plan for our school.
Principal	I've been involved in noting requirements to the Board however the BQRP has not yet come through to us.
Principal	I would like to have been involved with it - I have never seen the bills for anything.
Principal	We do not qualify for BQRP until next year

ZONE 3

POSITION	COMMENTS
Administrator	The mechanism of Alberta Education refunding the board after they have funded the retrofit is an awkward process. Funding should be provided prior to project initiation.
Administrator	Too much red tape in existing regulations. Process should be simplified by giving school boards funding on a per student basis.
Administrator	BQRP is too wound up in regulations.

ZONE 4

POSITION	COMMENTS
Administrator	No - difficult for small school jursidictions to get expertise; the BQRP regulations should give allocations for consulting services.
Administrator	No - they could be more complicated.
Administrator	No - they create delays.
Principal	No - BQRP is an extremely valuable allocation.

ZONE 5

POSITION	COMMENTS
Administrator	One can see the need for accountability but procedures need to be simplified.
Administrator	Applications should be allowed in the fall for next year's budget, to eliminate peak application time delays.

Administrator	The process is quite cumbersome. There should be an outright grant for districts that have proven themselves.
Administrator	The structure of the $50,000 cash grant is a nuisance for larger districts if projects exceed this grant amount.
Administrator	Worse procedure to actually implement
Administrator	BQRP is the most involved piece of red tape ever encountered. To much paper work for amount of funding. However, the intent of the programme is very good. A new formula for BQRP funding may be one based on a grant of 2% of the assessed value of building stock. This type of block funding for maintenance would result in more being accomplished.
Principal	The BQRP is an overkill on accountability. Too much administrative time involved.
Principal	Local board should conduct needs assessment based on local criterion.
Principal	Happy with the results of the BQRP programme.

Question 20 Should future services provided by an energy consultant be provided by the public or private sector?

ZONE 1

POSITION	COMMENTS
Administrator	Public since small juridictions cannot afford to hire consultants.
Administrator	Public for the extra services that could be provided i.e. curriculum and motivation. Public since it would provide more efficiency to work inside the system and there would be more price consciousness.
Administrator	A public sector employee would be more cost conscious due to the 10% engineering fees in the private sector.
Administrator	Current example is very efficient.
Administrator	Public, especially in rural areas.
Administrator	The public system is good in that it standardizes the consultants for the whole province and provides an important information exchange and pool of resources and ideas. Also the concept of area representatives is very good.
Administrator	Public until the majority of the work is accomplished and standards and procedures set.
Principal	Public so that experience is tranferred from one school to another.
Principal	Private since public sector employees quit too often.
Principal	Use public consultants for new programme then switch to private after the programme has been initiated to save money.
Principal	Public due to information exchange and time availability.

ZONE 2

POSITION	COMMENTS
Administrator	If future services were provided by an energy consultant in the public sector this would constitute a large staff - perhaps it would be more efficient in the private sector to provide services for retrofits.

Principal	I am uncertain about who should provide future services but it is important to have someone; if one looks at the public sector there may be a continuity in service; the question that I ask is what is the dollar return included in the energy retrofit expenditure calculations
Principal	I am uncertain about how the future services of an energy consultant should be provided because there is a necessity to develop credibility with the Board

ZONE 4

POSITION	COMMENTS
Administration	There should be a handbook of regulations that would indicate the charges for items to be done. This could be called a retrofit handbook.
Administrator	The supplier of the electronics (Honeywell) should be involved for future services.

ZONE 5

POSITION	COMMENTS
Administrator	Use 75% government consultants and 25% private for specialized expertise.
Administrator	Government offering though its consultants "free" advise to save money is a strong motivational aspect.
Administrator	A place exists for both a public and private sector.
Principal	A public sector individual could spend more time in schools and if he was based in school district and therefore could provide for a more intensive drive to project.
Principal	It is important for the consultant to be inside of the system so that he is accessible.
Principal	He is a public consultant initially under contract to access needs and then have the local boards maintenance people implement the project.
Principal	Private sector individuals are more in tune with industry and technology.
Principal	Both public and private sectors should play a role but the public sector should be a leader.

Principal	Schools are public buildings so energy consultants should be inside system.
Principal	The ultimate goal is to get most for the money spent so which ever is the most economical.
Principal	Use a combination since strictly public would be to expensive for all systems.
Principal	Use a public sector employee since the private consultants are to vulnerable to the dictates of an individual school system.

Question 21 On the basis of experience with your energy consultant would you favour that he contribute by providing curriculum support and materials?

ZONE 1

POSITION	COMMENTS
Administrator	Based on existing experience yes. For example for seminars and demonstration talks.
Administrator	No - this type of involvement would dilute his efforts.
Administrator	As a resource person. eg. Chis Peters has developed a slide tape show that will be made available to the board.
Administrator	Yes - if not a hide bound "bureaucrat".
Administrator	The consultant should stay with the technical aspects. Curriculum requires a different sort of mechanism.
Administrator	The consultant could not provide enough time.
Administrator	Yes - but only as an advisor.
Principal	It would be very difficult to find both specialties in one person. The energy consultant should act as a research person only and curriculum should not be part of his mandate or else he will be spread too thin.
Principal	As a research person only.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - on a continual basis.
Administrator	No - integrate supply with a guide book eg., fitted to certain curriculum areas and identified where and how it is to be done.
Principal	Yes - staff should be involved too.
Teacher	No - Dan Stoker should provide materials.
Principal	Yes - one must use a sutle approach to build it on; this will create more demands on the school curriculum; information must come from the Board of Education and publishers must approve materials.
Teacher	No - only if qualified and Phil Cox indicated that he was not doing this.

ZONE 3

POSITION	COMMENTS
Principal	Unless the energy consultant is familiar with the teaching process he cannot help.
Principal	The technical and curriculum aspects want two separate approaches.
Principal	It would be difficult to implement this kind of an approach since each school has different needs and requirements in curriculum.
Principal	The energy consultant must have knowledge of school systems and have a curriculum background that needs to be involved in curriculum.
Principal	Curriculum should be developed by those who know how.
Principal	A separate consultant is required for a curriculum aspect.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - but curriculum must respect Alberta Education Guidelines.
Principal	No - Dan Stoker has had a high impact on curriculum.
Principal	Yes - Dan Stoker was heavily involved.
Principal	No - staff should do it, however we should use the energy consultant as a resource.
Principal	Yes
Principal	No - energy conservation is not for high school level education.
Principal	Yes - teacher body will have to fit energy conservation materials into curriculum. However the energy consultant should be used as a resource person.
Principal	Yes
Principal	Yes - more material is required.
Science Teacher	Uncertain - the curriculum should only pertain to elementary school as junior high level there is a lack of interest in the teachers and students.

ZONE 5

POSITION	COMMENTS
Administrator	The consultant's personality is important if he is to be involved in the classroom.
Administrator	Is important for the energy consultant to help teachers see the different aspects of the project.
Administrator	Only as a resource person to local curriculum people at board level.
Principal	Yes - if individual was designated by province.
Principal	Yes - his major impetus should be to initiate curriculum material development.
Principal	He should help the local curriculum committee only. Teaching would not be successful due to a lack of teaching experience.
Principal	Should not be involved in curriculum due to lack of qualifications.
Principal	Note inexperience therefore no place in the classroom.
Principal	On a consultant basis only.
Principal	No - the curriculum aspect should be coordinated directly through Alberta Education Curriculum Branch.
Principal	Yes - on an advisory basis and only when required and requested.
Principal	It would depend on an individual's attributes.
Principal	Yes - in a supportive way i.e. by providing support materials particularly for curriculum options which are developed locally.
Teacher	Use Dan Stoker instead!!
Teacher	Use the energy consultant as a research person only.

Question 22 Similarly would you favor that the engineering energy consultant contribute by providing guidance for staff motivation?

ZONE 1

POSITION	COMMENTS
Administrator	Involvement will be dependent on abilities in this area. Administrator involvement would be dependent on abilities in this area.
Administrator	Guidance should be provided to principal and caretakers but not to teachers.
Principal	He should give presentations on projects as a motivational measure.
Principal	Yes - as a follow-up and carry through activity.
Principal	The consultant should attend staff meetings.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - the project has not been that affective in this area; require staff room comments; awareness is the key word; the number of engineers should be proportional to the zone size.
Principal	No - Dan Stoker should do it.
Principal	Yes - good job has been done at the principals association meetings.
Principal	Yes - statistics and charts should be available.
Principal	Yes - he has met with our staff already.
Teacher	No - use a curriculum person.

ZONE 3

POSITION	COMMENTS
Principal	Yes - if he has a good speaking ability.
Principal	Yes - but do not overdue the public relations aspects of the programme.

Principal	The range of skills for all three components of the project are too much for one person.
Principal	Yes - but the public relations aspect should only occur once per project.
Principal	Yes - for a new school in project but not on an onward going bases.
Principal	Staff motivation is the responsibility of principal.
Principal	Yes - at the school board level only.
Principal	Technical aspects should be separated from the rest of the programme.
Principal	Yes - if the consultant has good speaking skills.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - motivation should include custodians/maintenance people and there should be a component for teachers through workshops.
Administrator	No - not for teachers.
Principal	Yes - motivation should be coordinated through the principal for information relevant to the study.
Principal	Yes - via memos through the teacher who represents the staff at meetings.
Teacher	Yes - but there are not energy conservation futures this year.

ZONE 5

POSITION	COMMENTS
Administrator	Yes - an outside agent in the schools is important to get the people motivated. Yes -only if the energy consultant is trained in motivational aspects.
Principal	Only if the consultant was a teacher and had training in motivational management.
Principal	The teachers knew the consultant as a knowledgable individual so took him seriously.

Principal	Only if it was the right kind of person.
Principal	Use technical people for technical aspects.
Principal	Only in a coordinating role.
Principal	Would help fill the biggest hole in the project to date.
Principal	Only if the individual can deal with people.
Principal	Yes - only indirectly through heightening awareness of energy conservation among staff.
Teacher	Dependent on personality.
Teacher	Yes - should be a high priority.

Question 21 On the basis of experience with your energy consultant would you favour that he contribute by providing curriculum support and materials?

ZONE 1

POSITION	COMMENTS
Administrator	Based on existing experience yes. For example for seminars and demonstration talks.
Administrator	No - this type of involvement would dilute his efforts.
Administrator	As a resource person. eg. Chis Peters has developed a slide tape show that will be made available to the board.
Administrator	Yes - if not a hide bound "bureaucrat".
Administrator	The consultant should stay with the technical aspects. Curriculum requires a different sort of mechanism.
Administrator	The consultant could not provide enough time.
Administrator	Yes - but only as an advisor.
Principal	It would be very difficult to find both specialties in one person. The energy consultant should act as a research person only and curriculum should not be part of his mandate or else he will be spread too thin.
Principal	As a research person only.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - on a continual basis.
Administrator	No - integrate supply with a guide book eg., fitted to certain curriculum areas and identified where and how it is to be done.
Principal	Yes - staff should be involved too.
Teacher	No - Dan Stoker should provide materials.
Principal	Yes - one must use a sutle approach to build it on; this will create more demands on the school curriculum; information must come from the Board of Education and publishers must approve materials.
Teacher	No - only if qualified and Phil Cox indicated that he was not doing this.

ZONE 3

POSITION	COMMENTS
Principal	Unless the energy consultant is familiar with the teaching process he cannot help.
Principal	The technical and curriculum aspects want two separate approaches.
Principal	It would be difficult to implement this kind of an approach since each school has different needs and requirements in curriculum.
Principal	The energy consultant must have knowledge of school systems and have a curriculum background that needs to be involved in curriculum.
Principal	Curriculum should be developed by those who know how.
Principal	A separate consultant is required for a curriculum aspect.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - but curriculum must respect Alberta Education Guidelines.
Principal	No - Dan Stoker has had a high impact on curriculum.
Principal	Yes - Dan Stoker was heavily involved.
Principal	No - staff should do it, however we should use the energy consultant as a resource.
Principal	Yes
Principal	No - energy conservation is not for high school level education.
Principal	Yes - teacher body will have to fit energy conservation materials into curriculum. However the energy consultant should be used as a resource person.
Principal	Yes
Principal	Yes - more material is required.
Science Teacher	Uncertain - the curriculum should only pertain to elementary school as junior high level there is a lack of interest in the teachers and students.

Question 22 Similarly would you favor that the engineering energy consultant contribute by providing guidance for staff motivation?

ZONE 1

POSITION	COMMENTS
Administrator	Involvement will be dependent on abilities in this area. Administrator involvement would be dependent on abilities in this area.
Administrator	Guidance should be provided to principal and caretakers but not to teachers.
Principal	He should give presentations on projects as a motivational measure.
Principal	Yes - as a follow-up and carry through activity.
Principal	The consultant should attend staff meetings.

ZONE 2

POSITION	COMMENTS
Administrator	Yes - the project has not been that affective in this area; require staff room comments; awareness is the key word; the number of engineers should be proportional to the zone size.
Principal	No - Dan Stoker should do it.
Principal	Yes - good job has been done at the principals association meetings.
Principal	Yes - statistics and charts should be available.
Principal	Yes - he has met with our staff already.
Teacher	No - use a curriculum person.

ZONE 3

POSITION	COMMENTS
Principal	Yes - if he has a good speaking ability.
Principal	Yes - but do not overdue the public relations aspects of the programme.

Principal	The range of skills for all three components of the project are too much for one person.
Principal	Yes - but the public relations aspect should only occur once per project.
Principal	Yes - for a new school in project but not on an onward going bases.
Principal	Staff motivation is the responsibility of principal.
Principal	Yes - at the school board level only.
Principal	Technical aspects should be separated from the rest of the programme.
Principal	Yes - if the consultant has good speaking skills.

ZONE 4

POSITION	COMMENTS
Administrator	Yes - motivation should include custodians/maintenance people and there should be a component for teachers through workshops.
Administrator	No - not for teachers.
Principal	Yes - motivation should be coordinated through the principal for information relevant to the study.
Principal	Yes - via memos through the teacher who represents the staff at meetings.
Teacher	Yes - but there are not energy conservation futures this year.

ZONE 5

POSITION	COMMENTS
Administrator	Yes - an outside agent in the schools is important to get the people motivated. Yes -only if the energy consultant is trained in motivational aspects.
Principal	Only if the consultant was a teacher and had training in motivational management.
Principal	The teachers knew the consultant as a knowledgable individual so took him seriously.

Principal	Only if it was the right kind of person.
Principal	Use technical people for technical aspects.
Principal	Only in a coordinating role.
Principal	Would help fill the biggest hole in the project to date.
Principal	Only if the individual can deal with people.
Principal	Yes - only indirectly through heightening awareness of energy conservation among staff.
Teacher	Dependent on personality.
Teacher	Yes - should be a high priority.

Question 23, question 24, and general comments entertained throughout the interview session have been amalgamated into a general comment format based on subject.

ZONE 1 ENERGY CONSULTANT

POSITION	COMMENTS
Administrator	An energy consultant will not be needed in phase 3 of the project in districts that were involved in phase 2.
Administrator	It is hard to find the kind of expertise the energy consultant represents in the Peace River area. The energy consultant is of prime importance to the success of the project.
Administrator	All the energy consultants should not be directly out of school. Experienced personnel are necessary to the success of the project, especially in an expanded project.
Administrator	Consultants should be provided on an on-going basis for maintenance upgrading programmes.
Administrator	Once the pilot project is complete, consultant teams as a minimum effort should be provided to do audits of individual schools.
Administrator	Allow the energy consultant to have BQRP inspection authority on energy conservation project.
Principal	The energy consultant should do and in service in the school with the teachers to explain what is going with on the project and its benefits.

ZONE 2 ENERGY CONSULTANT

POSITION	COMMENTS
Administrator	In the future the energy consultant should be a facility planner and not just a specialist in the engineering aspects.
Principal	This individual thought the consultant was from the private sector
Principal	To start a programme all teachers in the area should have a meeting to describe the services that the energy consultant could provide;
Principal	The energy consultant should know the goals named by Alberta Education

ZONE 3 ENERGY CONSULTANT

POSITION	COMMENTS
Administrator	Future services of an energy consultant must be provided by a full time individual.
Teacher	Services of an energy consultant should be on a short term contract basis to have a more control.

ZONE 4 ENERGY CONSULTANT

POSITION	COMMENTS
Principal	The energy consultant should be more in evidence at the school and involved in classroom presentations - he should not just be in the boiler rooms.
Principal	The energy consultant did not discuss the insulation of a significant wal of the school.
Principal	The concept of an energy consultant, identifying problems at the school is good.

ZONE 5 ENERGY CONSULTANT

POSITION	COMMENTS
Principal	The experience of the energy consultant is important to the success of the project.
Teacher	Dan Stoker was good with people and allowed a group in a meeting to self organize yet the meeting was a success.

ZONE 1 CURRICULUM

POSITION	COMMENTS
Administrator	The curriculum component of the project could have used more funding.
Administrator	The curriculum component did not proceed as well as hoped.
Administrator	A lot more help is required in the curriculum component of the project.
Principal	Individual curriculum liaison teachers provided good energy conservation programmes in the classrooms but transferral to other teachers within the school was minimal.
Principal	The curriculum component was not very successful. It was less directed than anticipated.
Principal	The refusal of the board to give a workshop day to discuss implementation of the curriculum components for teachers gave a negative feeling to the teachers. The attitude was that if the board was not willing to invest teacher's time neither where they.
Principal	If planned units in energy conservation are developed, then they will be implemented.
Principal	Curriculum units should be developed to implement energy conservation on an onward going basis.
Principal	There is a willingness to implement energy conservation in the classroom if the support materials are developed elsewhere.
Principal	The only regret regarding the project is that there is not a set curriculum to follow in energy conservation.
Principal	The curriculum is too full already so this restricted the implementation of energy conservation component of the project. If energy conservation is to be part of the curriculum then unit should be prepared.
Teacher	To develop energy conservation units is too much extra work for teachers.

ZONE 2 CURRICULUM

POSITION	COMMENTS
Administrator	A weak area of the project is the curriculum area. It is not understood at the local level. It is apparently understood at the provincial level.
Principal	Kids left notes on blackboards regarding energy conservation
Principal	We do have an energy observation option provided by a teacher through his computer option class
Principal	We do have an energy observation option provided by a teacher through his computer option class
Principal	The SEEDS materials is expensive
Principal	Curriculum was development at the elementary level - we had seeds and energy snoops
Principal	Dan Stoker's energy bus was here. Phil Cox provided resources for energy conservation information
Principal	The curriculum component is the most important part
Principal	Principals has input to teaching
Teacher	With respect to future energy consultant a curriculum person would be more valuable
Teacher	The Energy Bus did a very good job, however, we were left high and dry after it has given presentation. Materials were sent to us without instructions about how to use them.
Teacher	The curriculum support materials were varied and hence they were good. However they were difficult to assemble, but definitely worthwhile; the energy snoop involved identification buttons for the students and required that they take the temperatures in the rooms and check the lights at recess; this was Dan Stoker's material and the new booklet was good.
Teacher	Phil Cox brought someone (D. Stoker) in to discuss SEEDS material. We developed an energy teaching unit. It consisted of: (i) Energy - Alberta use/Canada use; (ii) Energy availability by type; (iii) Power source map - existing and potential; (iv) How to do an energy inventory in a house, charting appliance ratings;

(v) Discussion of the school and its problems, with temperatures read in school;

(vi) Energy consumption was recorded;

(vii) Home insulation was recorded;

(viii) Building a model house project consisting of underground structure, 2" x 6" stud construction, insulation and landscaping (berms) for wind control.

(ix) This led to an awareness of energy.

Teacher — I discussed how to set up energy conservation curriculum with a science consultant for Edmonton Public; with respect to having an energy consultant involved at the Provincial level it would be appropriate, but at the local level it would not for the schools that were involved in the project, since we now know what to do for schools involved in the project. The energy consultant at the Provincial level should be concerned with curriculum only

Teacher — We are not considering preparing an extension to the curriculum materials because the ones we have have not been used

Teacher — It is important to have a curriculum that includes energy conservation.

Teacher — Energy conservation should be compulsary in a science curriculum

Teacher — Most of the energy conservation teaching unit that I developed was needed for junior high

Teacher — There should be a decent energy conservation curriculum established

Teacher — I made up classroom games which were book games involving tokens and cards to introduce the student to energy conservation

Teacher — I worked with both Phil Cox and Dan Stoker; we held meetings with Dan Stoker and used the energy bus at our school

Teacher — We had an in-service workshop in social studies and in grade 4 we teach energy resources

ZONE 3 CURRICULUM

POSITION	COMMENTS
Principal	The curricula is too full already! What is to be dropped to make room for energy conservation?
Principal	Teachers will be alienated from subject area if it is forced upon them.
Principal	Teachers do not have time to develop curriculum materials.
Principal	In this project teachers were unwilling due to newness of the subject area. This was the first time teaching energy conservation.
Principal	Teachers are overworked with new curriculum.
Principal	The curriculum aspects of the project where not available soon enough to be implemented properly.
Principal	The science coordinator should have been involved in the curriculum development.
Principal	Energy conservation should have been concentrated at the elementary school level.
Principal	Teachers are very busy therefore energy conservation requires prepared materials and guides to fit within existing units.
Principal	There is no place in the curriculum for a whole new unit in energy conservation therefore it must be intregrated within other units eg. science, social study, and language arts as reading material.
Principal	The majority of teachers are not interested in the subject area and would rather spend the time on the three R's.
Principal	Curriculum units were not available therefore expectations where placed on teachers to develop them.
Principal	Teachers are overworked with curriculum.
Principal	Teachers do not have interest in energy conservation.
Teacher	Energy conservation instruction should be extended to adults through night courses.
Teacher	Students in high school adopt causes for the sake of adopting causes and therefore teaching energy conservation in high school would be a waste of time.
Teacher	Students cannot be expected to be concerned with energy since they are only children. They will leave doors open for friends, etc.

Teacher	Energy conservation should be incorporated into the core curriculum.
Teacher	The optimum for increasing energy conservation instruction in schools would be to increase Dan Stoker's staff.
Teacher	Energy conservation would be intregrate into the curriculum if subject area was covered by departmental exams.

ZONE 4 CURRICULUM

POSITION	COMMENTS
Principal	Educating children regarding energy conservation leads to high savings as a societal benefit.
Principal	Dan Stoker has provided excellent input into a professional development day, along with the energy bus.
Teacher	Curriculum work has to be completed at the junior high level.

ZONE 5 CURRICULUM

POSITION	COMMENTS
Administrator	In conjunction with the project an upgrading course should be offered for those involved in the project to increase their understanding of buildings and building systems. For example a course should be run by Alberta Education to upgrade custodian qualifications since custodians can save considerable money and energy through proper maintenance.
Principal	Local personal should be in charge of preparing curriculum so that the excessive amounts of teacher time is not devoted to preparing curriculum.
Principal	A simple form for energy conservation curriculum support materials is very important. The materials should be simple to digest and teach since teachers cannot keep up with the paper overload.
Principal	The SEEDS materials are very good.
Principal	Energy conservation should be a part of a general consumer education.
Teacher	Energy conservation will be included in curriculum only by teachers who are enthusiastic about subject area.
Teacher	Energy conservation curriculum aspect of the project was too restricted since it only dealt with schools and did not include industry and home.

Teacher	It would be interesting to see if the curriculum aspects of the project dwindled without provincially supplied support materials.

ZONE 1 MOTIVATION

POSITION	COMMENTS
Administrator	The reaction of students and staff was negative to the project due to the fact that the school was to cold when the automatic controls where bein fine tuned.
Administrator	Once the retrofits are finished a follow-up programme is needed to promote attitudinal change.
Administrator	The energy consultant should become part of the everyday life of the school and this would change attitudes towards use of energy.
Administrator	The simple fact that the project occured raised conciousness with regard to energy conservation.
Administrator	A attitudinal shift among staff and teachers has not generally occurred.
Administrator	It is hard to change the long term attitudes towards energy use.
Administrator	Turning off lights does not save much energy but it is important from an attitudinal change.
Administrator	Changes to the building structure had the greatest impact on students.
Principal	The retrofits produced an indirect awareness of energy conservation.
Principal	Energy conservation will only come about through attitudinal changes. In the long term attitudinal changes will come from curriculum.
Principal	A communication gap was a problem in the project so the staff was not aware as they should be of it. There should have been more explanation as to the what and why of the project.
Principal	Teachers have not been informed enough regarding the project.
Principal	A lack of enthusiasm among staff towards energy conservation and the project was created by the fact that priority items such as leaky doors were not fitted and there where oversites in a new addition regarding energy conservation. The new addition was retrofited three months after it was finished.

ZONE 2 MOTIVATION

POSITION	COMMENTS
Administrator	Motivating the public is important. The Energy Consultant was helpful to motivate Board, staff and students.
Principal	Staff motivation is important.
Principal	I am not familiar with what is happening in our school, but the problems are attended to quickly.
Principal	Motivation management component definitely needs more work.
Principal	Maintenance men tend to resent a young chap (the energy consultant). "In-service" sessions for all maintenance men would be a positive step to be taken by Board. Alberta Power is concerned with the power consumption and its possible alteration.
Principal	The way the project was handled by the division left no decision making for the principal.
Principal	There is a lack of satisfactory information that has occurred during this project. We have not been informed about the money that has been spent and what will be gained and right now view it as a limited feedback; I would note that teachers pay for their plug-ins and when there is a plug-in problem, eg., the cycling of the timers then there is a lack of credibility; this line of credibility in the technical component provides the opportunity for people to raise questions such as did we save money and does every break down?
Principal	Some of our teachers have been looking at curriculum through a committee and they are considered motivators of the staff in our school with respect to energy conservation information; we have obtained SEEDS materials and notes from a workshop.
Principal	We have motivated children over the last half year through sweater days (Dan Stoker). We have reduced energy from Thursday after school until Monday morning and have provided charts which identified consumption; we have noted that habits have effectively changed because we now have the lights off when they are not required.
Teacher	The lack of money for school curriculum materials resulted in teachers not being motivated.
Teacher	I would like to continue motivation measures in our school.
Teacher	I want to motivate children with colorful posters.
Teacher	With respect to my comment on lack of interest in topic expressed by staff members there is a disadvantage in the ECS-

12 grade range because too many teachers and their interests are required to teach the subject. (The subject is too interdisciplinary to be monitored by a small interest group inside the teaching community.)

ZONE 3 MOTIVATION

POSITION	COMMENTS
Principal	The school should receive the direct benefits from savings of energy possibly through school based budgeting so that staff would be truly motivated to save energy.
Principal	The energy conservation measures should not down grade the quality of the environment or else programme will be counter productive with respect to motivational aspects.
Principal	If teachers see personal benefits resulting from project i.e. full spectrum lighting and a negative ion generator in staff rooms then this is a good motivational measure.
Principal	The project did not rectify the worst aspects of the school building envelope with respect to energy conservation i.e. leaky doors and windows, so students did not respond to conserver ethic when they see such obvious waste around them.
Principal	If retrofits makes school too cold then it has a negative impact on students' attitudes.
Principal	Making students aware of doors and lights is the most important motivational measure.
Principal	If building envelope is not sufficiently upgraded then it has a negative impact on motivation.

ZONE 5 MOTIVATION

POSITION	COMMENTS
Principal	Students will be involved in energy conservation if they received direct benefits.
Principal	The design of school will effect energy consumption more than students efforts.
Principal	Most teachers can effect energy savings already if they want to, it is that important to make people want to save.
Principal	The awards and incentive important motivational aspect i.e. money for extra equipment. Teacher must see something in it for themselves.

Principal	Alberta Education should not spend money in energy and cut back in other areas since teacher morale is important to project.
Principal	Reward system acted as a disincentive for those who saved energy before rebates or implemented i.e. percent of drop in savings less for those who saved before.
Principal	What happens to the incentive programme when all energy is saved that can be realistically saved.
Principal	Energy conservation need an extra push to promote.
Principal	There was not enough information supplied regarding retrofits.
Principal	People in schools were not given enough decision making input and therefore they feel left out of process and are not motivated.
Principal	Automatic HVAC controls take too much away from individuals i.e. these controls must be programmed for all times for the next five school years. Where is the flexibility in that.
Teacher	Beware of the autocratic approach.
Teacher	The incentives are important.

ZONE 1 TECHNICAL

POSITION	COMMENTS
Administrator	Automatic controls do not respond to the idiosyncrasies in the buildings.
Administrator	Due to this project previous malfunctioning equipment were located.
Administrator	Night users of school are a problem with respect to automatic set b cks.
Administrator	The large variety of equipment in different school additions created problems.
Administrator	The insulation in the gymnasium walls seems to have settled over the year. Perhaps a better product is required.
Administrator	Night set backs will not work without proper insulation. These two aspects should be developed together.
Administrator	A new product is required for vapor barrier application in school building renovations. Something is required to seal areas around pipes, bracing, etc. Perhaps some form of silicon spray could be developed for this application.
Administrator	Cement block walls should be lined to increase R factor especially in the gymnasium. These walls are very cold especially with night set backs. There are corners of the school that never warm up in the middle of the winter.
Administrator	Contractors did not respond to the project. It was very hard to get this type of work done in this area of the province.
Administrator	The project could be expanded to include transportation (buses) as well as buildings.
Administrator	There were problems encountered related to the original equipment in the school, so a check list should be developed for on-going maintenance.
Administrator	The original focus and assessment of the project was on motivation but changed to technical when a change in consultant occured.
Administrator	It was hard to get competitive bids to do the work and often it was hard to get a bid at all.
Administrator	Alberta Education should develop standard energy efficient designs for small elementary schools. Alberta Education must take a lead in new school energy efficient design otherwise the boards will not take the initiative due to the increase capital cost.

Administrator	The retrofit programme should stress installation of vapor barrier more than it did.
Principal	Kennedy Elementary School should be studied as an example of how not to build a school with respect to energy conservation. It is perhaps the worse school in this regard in the province.
Principal	Urinal flushing devices in the boy's bathroom resulted in smells.
Principal	The building inspector indicated that some wiring done by the energy consultant was not up to goal.
Principal	Time clocks do not respond to power outages and daylight savings.
Principal	Energy conservation measures implemented on an inconsistent basis. Priority items where not tackled while the emphasis was on turning off lights while leaky outside doors were not fixed.
Principal	More attention should be paid to new construction eg. thermostats installed in a new additon to school were replaced within one month of opening.
Principal	When thermostats where locked no keys were given to staff.
Principal	Construction practices of contractor were not up to scratch. eg. nails and moulding left in hallways.
Principal	No keys given out for new vestibule doors.

ZONE 2 TECHNICAL

POSITION	COMMENTS
Administrator	The programme was fragmented (eg) energy conservation measures were applied to heat reduction and not lighting, hence new BQRP funding will be required this year.
Principal	We are finally able to control the heating in the school.
Principal	The school design should be look at prior to redevelopment.
Principal	Three items that required attention in our school but apparently were not reviewed, were lighting, heat in the summer and lack of humidity in the winter. Nose bleeds were prevalent due to dryness. The school also appears dusty. The dryness is costly to us when sick days are taken by staff. Further, as the heat increases, a students learning curve diminishes. Portable fans are required in some areas.
Principal	There is a credibility problem with retrofits. Two years ago we switched to propane and hence we have been told that consumption standards could not be set.

Principal	We have yet receive information back regarding technical retrofit savings; work is still in progress because of delays by the school district regarding renovation and drainage plans to alleviate problems in our school.
Principal	I believe Phil Cox elected Fort Kent school as a show case school however it will be closed shortly due to its small enrollment.
Teacher	The teachers do not like small windows in some rooms and some of our skylights have been left open; additionally some thermostats are not connected to the school.
Teacher	Car timers would not work initially.
Teacher	I would like to have even heat in the school; the condition is noted by children when the room is too hot; the thermostat in the room in the old school does not work.

ZONE 3 TECHNICAL

POSITION	COMMENTS
Teacher	A positive feature of the project was that the work that was carried out to upgrade buildings was done without upsetting the functioning of the school.
Teacher	Energy conservation must start with new buildings, retrofits are too hard to achieve objectives.

ZONE 4 TECHNICAL

POSITION	COMMENTS
Principal	The location of our school presents a severe problem to energy conservation measures. Our school is located in the open without screening and hence the only energy that voluntarily can control would be power for lighting; if we where to carry the rooms at 70°F all the time the students would ultimately be cold due to severe wind chill factor on the building.
Principal	The technical retrofits were externally imposed.
Principal	Our roof leaks.
Principal	An interesting spin-off was the discovery that air vents had been sealed by paint.
Principal	The humidifiers have been disconnected and the Division Maintenance Department has not responded to requests for service.

	Little confidence in the Honeywell microprocessors has been expressed by our staff.
Principal	Community groups use the school in the evening and the Honeywell staff has noted how to override the system.
Principal	Major building upgrading is beneficial.
Principal	Some items such as window leaks were not tackled.
Custodian	A manual (regarding the micro processor functions) will be developed by Honeywell for maintenance staff.
Custodian	High wear on motors (pumps) will occur with start/stop operations mode. Has this been taken into account?
	Only one person in the school knows how to monitor energy conserving devices.

ZONE 5 TECHNICAL

POSITION	COMMENTS
Principal	Deficiencies in original HVAC equipment cause problems when the buildings were retrofitted for energy conservation, i.e., cold or hot in stuffy rooms.
Principal	There were problems with the contractors completing work on schedule. Perhaps contracts should have penalty clauses.
Principal	Old HVAC equipment is hard to upgrade for energy conservation.
Principal	Heating equipment in the school was too old to respond to set-backs properly thus creating cold rooms.
Principal	Thermostats were set too low and then locked in that position.
Principal	Parts of the building were too cold due to thermostats being turned down too low.
Principal	Automatic controls did not function as they were intended.
Principal	Hard to retrofit existing equipment and not diminish quality of environment in schools, i.e., deficiencies in HVAC systems created cold rooms with set-backs.
Principal	Automatic controls resulted in the fact that HVAC system could not be turned on for special occasions in the evenings.
Principal	Some of the retrofits were not effective and individual was not happy with results.

Principal	Automatic controls on fans has created dead air in certain rooms.
Principal	The funds spent on automatic controls should have been spent on upgrading poor existing equipment since ventilation in certain rooms went from bad to worse.
Teacher	Technical problems with existing equipment hamper retrofits to conserve energy.
Teacher	The project created school board awareness of major existing problems re HVAC and temperature fluctuations.
Teacher	Fans on timers create stuffiness and thus lower quality of teaching environment.
Teacher	Lower lighting levels are too dim. Good fluorescent tubes were being thrown out to be replaced by a lower wattage tube.

ZONE 1 ECONOMICS AND FINANCING

POSITION	COMMENTS
Administrator	The financial aspects of the project are still an unknown.
Administrator	Funding for energy conservation projects should be based on the needs of individual schools.
Administrator	Too early in project to determine the amount of money saved.
Administrator	The five year payback period is too limited.
Administrator	Monies and standards must be put in place by Alberta Education for new schools.
Administrator	Alberta Education should pay for energy conservation retrofits of all school buildings since these buildings were originally built under their regulations and therefore the upgrading is their responsibility. The current situation is one of catch-up.
Principal	Despite the problems with the project energy savings were demonstrated.

ZONE 2 ECONOMICS AND FINANCING

POSITION	COMMENTS
Principal	I felt that amount of money spent for education purposes was out of balance with technical aspects. Students do have an appreciation for energy conservation but I am not sure how it has happened.
Principal	Our programme is slow because our BQRP is not yet complete.

ZONE 3 ECONOMICS AND FINANCING

POSITION	COMMENTS
Principal	Principals would like more say in how funds are spent to increase local control on quality of life issues.
Principal	There is still more to do in this school to save energy.
Teacher	Energy savings were made without upsetting anyone.

ZONE 4 ECONOMICS AND FINANCING

POSITION	COMMENTS
Administration	The funding process was a weak part of the field project - although the funding was fair, the Province should review its funding ratios; the school board is not large enough to hire its own engineers and hence a sharing of technical expertise should be considered; staff must be available to keep energy conservation going.
Principal	Any discussion of energy consumption standards and cost sharing formulas should be tied into existing deficiencies.
Principal	My only contact with BQRP was to fill in a maintenance sheet in October-November and wait for 6 months.
Principal	Energy conservation measures at our school were not properly priorized.

ZONE 5 ECONOMICS AND FINANCING

POSITION	COMMENTS
Administrator	The project pays dividends!
Principal	Funding must be adequate to do the job properly or not at all.
Principal	Decentralized budgeting would be a good step.

ZONE 1 COMMUNICATIONS

POSITION	COMMENTS
Principal	More communication is needed about type and timing of work to be carried out.
Principal	Information exchange is important and perhaps could be in the form of a booklet on the project.
Principal	Well one project except for information dissemination aspects.
Principal	There was a lack of information regarding timing of construction.
Principal	Classroom time was disturbed due to poor timing of retrofits.
Principal	The talk-back sheets were a good idea.
Principal	There must be better communication between the school and the school board.

ZONE 2 COMMUNICATIONS

POSITION	COMMENTS
Administrator	I did not meet others such as Dan Stoker or Dana Sundmark.
Principal	Communications are essential. The human contact can not be ignored.
Principal	With respect to energy conservation and definition one must ask whether it is important to use more or less; if one is committed to less energy use then one must use less; on the other hand my opinion is one that's in satisfying a goal to save energy does not necessarily save money.
Principal	With respect to the emphasis of the existing project the results of the retrofits, were more from the Board's perspective than from the schools perspective. Lights are used as signals to communicate messages. Turning out the lights indicates that people are out of the school. When lights were turned out to promote energy conservation it was translated by other staff members that the building was empty, a situation that created lags in communications during the day.
Principal	The role of the principal is under discussion. Currently it is an administrative role in which staff must be motivated and curriculum must be noted; this principal does not have a job description; the Board should define the principal's role.

Principal	Last year we prepared a chart as part of the demonstration project in our school. However this year we were somewhat disappointed in the information transferred to both the school and the students and hence the community.
Principal	Janitors did not know what the energy consultant was doing; Energy consultant did not know that the janitors were doing; Maintenance did not know what the energy consultant was doing.
Teacher	I did not know there was an Energy Steering Committee; there should be workshops for teachers
Teacher	A report from Phil Cox to explain what was happening at school would have been advantageous.

ZONE 3 COMMUNICATIONS

POSITION	COMMENTS
Teacher	Teachers were kept informed which was good.
Teacher	Meetings were few enough so they were not redundant or imposing.

ZONE 4 COMMUNICATIONS

POSITION	COMMENTS
Administrator	Information was the most positive feature because now that we are aware of energy conservation we are designing schools with that information.
Administrator	The Energy Steering Committee was a cost conscious sounding board.
Principal	If another Steering Committee is struck it should have school representatives that would include an administrator and a teacher.
Principal	Continuity in the Steering Committee is important.
Principal	Did the energy consultant have too much to do? He could have been present at school more than 4-6 times in two years. More contact between the energy consultant and staff members is needed. More telephone contact could have been answer to neutralize the lack of communications. There was no formal correspondence or progress report regarding work on school.

Principal	The principal did not have input into retrofits and hence could not confirm priorities.
Principal	I did not know when activities were occuring.
	Honeywell did not inform principal when they were to be in the school and interfered with classes.
Principal	The Energy Quarterly was useful. This school was included.
Principal	There was a lack of communications. Roles and guidelines for individuals were lacking. The caretaker was not aware of computer operations. Should the principal be left ignorant?
Principal	More personal involvement with teachers on the part of energy consultant is needed.
Principal	The evening at Springbank High School was very well handled but not well attended. The energy bus was good.
Principal	A presentation regarding energy conservation should be made to all regional high schools.

ZONE 5 COMMUNICATIONS

POSITION	COMMENTS
Administrator	The custodians should have been directly involved in the project instead of just being told about it.
Administrator	Public relations for the project are most important.
Administrator	More publicity about energy conservation is important.
Administrator	An information exchange with other boards and between schools in a district is important.
Administrator	Communiciation is important.
Administrator	Staff reaction to change must be overcome with public relations.
Principal	Energy consultants should take advice from the janitor, re: running of the school.
Principal	The project has resulted in students being more conscious of energy use eg., turn off lights if teachers do not.
Principal	Information dissemination is important to the success of the project.

Teacher	A system wide newsletter should be used to disseminate information regarding energy conservation.
Teacher	An important aspect of the project is community development.

ZONE 1 FOLLOWUP ACTIVITIES

POSITION	COMMENTS
Administrator	The programme should be extended to the rest of the schools.
Administrator	A follow-up study in three to five years would be important to verify the long-term effectiveness of the project.
Administrator	Guidelines should be developed for the retrofit process to give direction to boards with regards to cost benefit analysis and a check list of implementation process.
Administrator	Keep programme administration as simple as possible.
Administrator	A serious look should be made at the long-term paybacks up to ten years.

ZONE 2 FOLLOWUP ACTIVITIES

POSITION	COMMENTS
Administrator	We have developed a maintenance schedule for future activities.
Administrator	In this jurisdiction it would be contingent upon financing the new school in the Cold Lake area.
Administrator	With respect to technical retrofits it would be important to acquire data in about a year to determine the effectiveness of the existing programme; and to determine additional future technical retrofits.
Administrator	With respect to future technical retrofits, we should wait for one year to determine the data and their outcome eg., has there been a cost savings.
Administrator	With respect to motivation and curriculum in the future follow up is essential or the whole ,p,emti, will be lost; we expect to have SEEDS material next year.
Principal	Motivation and curriculum areas are the two areas in which to concentrate for a future programme at our school.
Principal	Money should be included in a benefit/cost analysis.
Principal	Take into consideration the needs of the school users and translate them into comfort levels before retrofitting in future.
Teacher	There should be a social studies resource person and I refer to the Red Deer science council where we discussed the SEEDS material.

ZONE 3 FOLLOWUP ACTIVITIES

POSITION	COMMENTS
Principal	In terms of process the retrofits should be done first then the curriculum aspects to follow.

ZONE 4 FOLLOWUP ACTIVITIES

POSITION	COMMENTS
Administrator	I appreciated the human resources, and would like to have them available on a regional basis (eg) time shared.
Administrator	Encourage caretakers to get involved and when retrofits are completed there should be an orientation for them.
Administrator	Possibly Alberta Education could appoint a consultant or retain a consulting engineering firm on retainer.
Principal	Committment should be by both the Province and the Division.
Principal	The Division Maintenance Department should be able to perform a mini-audit. I would like to see results of maxi-audit. I would like to have school administraiton involved.
Principal	There sould be a policy or philosophic outlook with respect to starting over again. One question would be do you cut the gas consumption or the programme contained within the school? Additionally should one the change reasons for education?
Principal	The School Buildings Branch should use a computer analysis for a proposed new building to determine its energy use.

ZONE 5 FOLLOWUP ACTIVITIES

POSITION	COMMENTS
Administrator	The best results in the future will be achieved if boards apply their own impetus to the programme. The will must be there to overcome the problems or else the project will fail. Retrofits should be carried out in summer so that the kinks can be ironed out of the system before the cold weather sets in.
Teacher	Energy conservation must become a priority.

ZONE 2 OTHER ISSUES

POSITION	COMMENTS
Principal	With respect to energy conservation attitudes too much has been taken for granted in the past; our class projects have been studies with our resources energy and energy used in home and school.
Principal	The project has been of benefit to the school, however, the workmanship has been shoddy and remains unfinished. Poor equipment (eg) hardware may have been used.
Principal	This was the first encounter with energy conservation. Now that the crunch is of with Cold Lake and an economic slowdown, more emphasis is needed on conservation.

ZONE 3 OTHER ISSUES

POSITION	COMMENTS
Principal	Community use of schools is an important issue with respect to energy use.
Principal	Students making measurements in the boiler room was not safe or accurate. A solution was found by appointing two students for the project.

ZONE 4 OTHER ISSUES

POSITION	COMMENTS
Administrator	Energy conservation attitudes are a necessity.
Principal	A key question that must be asked - How does the school cut down on energy use without cutting back on programming?
Administrator	A standards approach to energy conservation is needed.

ZONE 5 OTHER ISSUES

POSITION	COMMENTS
Administrator	There is still a question as to who should be responsible for the project, either the consultant or the school board.
Principal	The energy bus and van were very helpful and interesting.
Principal	The janitors did not want to participate in the project.

Principal	Evening use of school hard to control with respect to energy conservation.
Principal	The retrofits were not effective.

ZONE 1 ASSESSMENT OF PROJECT SUCCESS

POSITION	COMMENTS
Administrator	The programme is basically good.
Administrator	Very enthusiatic about the project -particularly the physical plant aspects.
Administrator	Generally quite pleased with project.
Administrator	Hope project continues since project was very beneficial.
Administrator	Fantastic pilot project.
Principal	Support the intent of the project.
Principal	The Department of Education should be congratulated because the programme demonstrated intangible terms that energy can be saved.
Principal	Educationally the project was only a partial success.
Principal	Good project in the retrofit area.

ZONE 2 ASSESSMENT OF PROJECT SUCCESS

POSITION	COMMENTS
Administrator	This was a good project
Administrator	Extremely pleased with work by Alberta Education and Energy Conservation Branch.
Principal	With respect to the energy conservation consciousness we believe that the children have taken it into their homes.
Principal	Our school is considered a community school and hence it is used during weekday evenings creating problems with energy conservation.
Teacher	This was not a successful project due to little involvement in teaching energy conservation concepts.
Teacher	The least positive features to the project included a lack of support from the Edmonton Contractor who did the work.
Principal	With respect to positive aspects of the field project the people who are involved with it claim that there has been a better heat balance and better lighting created in the school. However I remain a skeptic - we did not address the issue of comfort and

	energy conservation as is noted by the lack of humidity in the school.
Principal	Weak areas were staff motivation and curriculum.
Principal	There was very little inconvenience by individuals doing the work.
Teacher	The technical component was handled poorly; the servicing was poor because we had to wait 1-2 weeks; the curriculum materials were a hodge-podge with nothing to focus on; a focussed set of materials would have helped.

ZONE 3 ASSESSMENT OF PROJECT SUCCESS

POSITION	COMMENTS
Administrator	Good programme, very beneficial. Hope that programme continues.
Administrator	Programme provided direction and very beneficial and positive.
Principal	Very timely project.
Principal	Positive experience.
Principal	Very successful project.
Principal	Well run project.
Teacher	Good project.

ZONE 4 ASSESSMENT OF PROJECT SUCCESS

POSITION	COMMENTS
Administrator	The emphasis in our area was on technical retrofits. However there should be some emphasis placed on curriculum. How many children will take energy conservation to their homes.
Administrator	Very positive about project and would like to see it continue.
Administrator	Some schools have received maximum benefit although in some there were complaints from the school staff that comfort was ignored. Temperatures in gymnasiums have yet to settle down.
	Some initial technical problems had to be overcome.
Principal	Although we saved energy, the rewards were not reaped properly; it would appear that priorities and programming has not been set appropriately for the retrofits.

Principal	A very good idea. The curriculum was handled well but needs expansion.
Principal	A general complaint in this school is in regard to the high dollar expenditure on hardware and sophisticated electrical gear when drafts are prevalent at windows and where the wall and ceiling meet. This has created poor working and learning conditions.
Principal	Heavily positive.
Principal	There are fewer complaints (about system changes) now.
Custodian	There were not enough practical measures in our area.
Custodian	Very pleased with Energy Conservation Field Project. Initial problems were in part attitudes of people.

ZONE 5 ASSESSMENT OF PROJECT SUCCESS

POSITION	COMMENTS
Administrator	Most positive project carried out in district in a long while.
Administrator	Extremely happy with involvement in the project.
Principal	Good project - both staff and teachers learned something.
Principal	Very positive about the project.
Principal	Very good project.
Principal	Good project.
Principal	Project worthwhile.
Teacher	Exciting to realize the interest there is in energy conservation.

APPENDIX H

BUILDING QUALITY RESTORATION PROGRAM

ENERGY CONSERVATION PROJECT

QUESTIONNAIRE

BUILDING QUALITY RESTORATION PROGRAM

ENERGY CONSERVATION PROJECTS

QUESTIONNAIRE

Date: _____

Interviewee: _____ Title: _____

School Jurisdiction: _____

Project School Names: _____

1. What was the extend of energy conservation retrofit programme in each school in your jurisdiction?

2. Were the BQRP energy conservation projects an integral component of other BQRP projects (e.g. modernization, aesthetic upgrading)?

3. Did you establish the cost effectiveness of energy conservation prior to BQRP application?

4. How did energy conservation become a priority in your school jurisdication?

5. Who provided advice regarding energy conservation in your school jurisdiction?

Was the advice you received satisfactory.

6. Did your energy conservation programme extend beyond technical retrofits to include motivation management and curriculum components?

7. From your perspective are there deficiencies with respect to the energy conservation catagories of projects in the BORP?

8. Is the BORP application process a simple procedure?

Why not?

What changes would you recommend?

9. What mechanism do you perceive to be the best approach to implementing energy conservation in schools in:

(A) Your jurisdiction?

(B) Across the province?

10. What was the percent of the financial support via BORP for the entire energy conservation project, and was the support satisfactory?

11. What degree of success have you achieved in your energy conservation retrofit project?

APPENDIX I

BIBLIOGRAPHY

BIBLIOGRAPHY

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British Columbia Energy Commission. Update Report July 1978. Energy Conservation Program: 1978-1979. Vancouver: BCEC, 1978.

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(Note: Contains detailed bibliography.)

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Canadian Education Association. Energy Conservation in Schools: The Human Factor. Toronto: CEA, 1980.

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Contract Research Corporation. Pilot Project: Energy Audits of Washington Schools. (Prepared for the Washington State Energy Office.) Sante Fe, N.M.: CRC, 1977.

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Minos Vaitkunas Jamieson Architects Ltd. Sweet Grass Elementary School. A Study in Energy Conservation. Prepared for Edmonton School District No. 7, June 1978.

National Research Council of Canada. Proceedings First Canadian Building Congress: Energy and Buildings. Toronto, 25 to 27 October 1976. Ottawa: NRCC, 1977.

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National Research Council of Canada, Division of Building Research. Carbon Dioxide Measurement in Open-Classroom School with Outside Air-Supply Damper Closed to Conserve Energy. (Building Research Note No. 169.) Ottawa: NRCC, 1980.

National Research Council of Canada, Division of Building Research. Energy Conservation in Existing School Buildings. (Canadian Building Digest No. 209.) Ottawa: NRCC, 1979.

National Reserach Council of Canada, Division of Building Research. Energy Conservation in Schools. (Bibliography No. 43.) Ottawa: NRCC, 1980.

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Neill, S.B. School Energy Crisis: Problems and Solutions. U.S.: American Association of School Administrators, 1977.

New Jersey Department of Education. Energy Conservation Guidelines: District Level Plan for Conservation. N.J.: The Dept., 1980.

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Saskatchewan Power Corporation. School Energy Management Coordinators Workshop. Regina: SPC, 1980.

Stanley Associates Engineering Ltd. School Specifications Study — McLelland Lake New Town. Prepared for Alberta Education, Planning and Research Branch, December 1980.

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University of Alberta, Department of Physical Plant. The RCMS Story. Edmonton: University of Alberta, 1981.

University of Calgary, Faculty of Environmental Design. An Energy Management Programme for Grande Prairie Public School District No. 2357. Edmonton: Alberta Education, 1979.

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U.S. Federal Energy Administration. Office of Energy Conservation and Environment. Guidelines for Saving Energy in Existing Buildings. (Building Owners and Operators Manual ECM, and Engineers, Architects. and Operators Manual ECM2.) U.S.: The Dept., 1975.

Wiles, D.K. Energy, Winter and Schools. Lexington, Mass.: Lexington Books, 1979.

COMPUTER LITERATURE SEARCH
DIALOG INFORMATION SERVICES INC.
ERIC DATABASE (FILE 1)

20/7/2
EJ261803 HE515571
Doing Better with Less Energy: Energy Master Planning.
Sieben, Stephen P.
Planning for Higher Education, v10 n2 p8-9 Win 1982
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Energy savings through improved operation and maintenance of buildings and through implementation of energy conservation measures are discussed. Energy master planning—an approach to major retrofit and occupancy for existing college buildings, and energy conscious design and occupancy for new buildings—is advocated. (MLW)

20/7/4
EJ253768 EA514722
Tupelo Says Goodbye to Cheap Power.
American School and University, v54 n2 p46-48,51-52 Oct 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Increasing hydroelectric costs jolted the Tupelo (Mississippi) School District into an energy conservation program. Corrective measures have kept operating cost increases within 10 percent. (Author/MLF)

20/7/7
EJ249863 EA514474
Big Ideas in a Small Scale School.
American School and University, v53 n10 p28-29 Jun 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Energy measures, flexibility, durable materials and an imaginative site plan, help create a stimulating place to learn at the Norman Rockwell Elementary School in Omaha (Nebraska). (Author/MLF)

20/7/9
EJ247059 EA514382
Bright, Light and Energy Efficient.
American School and University, v53 n9 p18-19 May 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
The new Sharon Elementary School in Newburgh (Indiana) has a three-fuel

plan that will allow selection of the most economical energy source for each heating season with an energy-efficient lighting system that includes skylights. (Author/MLF)

20/7/10
EJ247055 EA514378
One Energy Miser's Plan.
American School and University, v53 n8 p64-65 Apr 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055); PROJECT DESCRIPTION (141)
A Kansas school district uses computers, an energy management consultant, retrofitting, and school cleaning scheduling to reduce energy use. Documented results of energy use were part of successful applications by nine school administrators for retrofitting grants. (MLF)

20/7/11
EJ247048 EA514371
Winter Shutdown: An Iowa Experiment.
Moravec, Jeff
American School and University, v53 n8 p40d-40e Apr 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141); NON-CLASSROOM MATERIAL (055)
Two Iowa universities closed for two weeks during the Christmas 1980 holidays to comply with state-ordered budget cuts. Despite lowering building temperatures to 50 degrees and asking employees to take vacation days or unpaid leaves, neither university saved as much money as had been anticipated. (Author/MLF)

20/7/12
EJ247043 EA514366
Should We Have an Energy Coordinator?
Graves, Ben E.
American School and University, v53 n8 p23-24 Apr 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055)
Large school districts or campuses need a full-time energy coordinator. A staff member may be assigned this work in smaller organizations. The elements of an effective energy program are outlined. (Author/MLF)

20/7/13
EJ246000 HE514358
Energy Conservation in Operation and Maintenance of Facilities.
Crittenden, Christopher; Burnau, Teresa
New Directions for Higher Education, No. 34 (New Approaches to Energy Conservation) v9 n2 p31-39 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)
Colleges and universities will need to maintain economic stability in the face of decreasing energy supplies, periodic fuel shortages, increasing prices, and tighter budgets. The necessary physical plant measures and the commitment required of the entire campus community are discussed. (MLW)

20/7/14
EJ245999 HE514357

Capital Improvements for Energy Conservation.
Green, Alan C.
New Directions for Higher Education, No. 34 (New Approaches to Energy Conservation) v9 n2 p21-29 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)
Although colleges and universities have been aggressive in making capital improvements to conserve energy, their efforts have been hampered by limited capital funds. Decisions about capital investments tend to be complex because of the interrelatedness of conservation strategies and the need to consider the cost advantage of alternatives. (Author/MLW)

20/7/15
EJ245997 HE514355
A Framework for Energy Management Programs.
Bomar, Horace I., III; Hirsch, Arthur F.
New Directions for Higher Education, No. 34 (New Approaches to Energy Conservation) v9 n2 p1-14 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Energy cost-avoidance programs are seen as providing the unique opportunity to involve the entire campus in an effort that has an impact not only on the campus but also on broader national problems. Several aspects of the comprehensive energy management program at the University of Pennsylvania are discussed. (MLW)

20/7/16
EJ245748 EA514318
Heaven and Earth Cut School Fuel Bills.
Abel, Barbara
Executive Educator, v3 n6 p19 Jun 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Describes an earth-sheltered school in Reston (Virginia) and the savings in energy costs realized in the first three years of operation. An accompanying article profiles the school's principal. (MD)

20/7/18
EJ245732 EA514276
Energy Conservation Program Cuts School Gas Use by 45%.
Sampson, Walt
School Business Affairs, v47 n3 p20-22 Mar 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055); PROJECT DESCRIPTION (141)
Energy conservation measures at Longmont High School (Colorado), including reducing air entry, heating water only during school hours, and lowering lighting levels, are expected to save 45 percent in natural gas usage and 20 percent in electric usage. (Author/MLF)

20/7/20
EJ240437 EA513836
What's New in School Energy Savings?
Nickell, Joe
CEFP Journal, v19 n1 p15-18 Jan-Feb 1981
Available from: Reprint: UMI

Language: English
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055)
A compilation of innovative school energy conservation practices that have appeared in the literature since 1977. (Author/MLF)

20/7/21
EJ238682 EA513818
Energy Conservation: Three Projects That Worked.
American School and University, v53 n5 p15-17 Jan 1981
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Compact design and insulation cut energy use at a junior high school in Rexon (New Brunswick). Loma Linda University in California has reduced consumption of natural gas by installing cogeneration equipment. Morningside College in Sioux City (Iowa) has replaced deteriorating windows. (Author/MLF)

20/7/23
EJ232061 EA513332
Energy Building Regulations: The Effect of the Federal Performance Standards on Building Code Administration and the Conservation of Energy in New Buildings.
Kopper, William D.
U.C. Davis Law Review, v13 n2 p330-56 Spr 1980
Language: English
Document Type: JOURNAL ARTICLE (080); LEGAL MATERIAL (090)
Explores the changes in the administration and enforcement of building regulations that will be engendered by the proposed federal energy building standards. Also evaluates the effectiveness of those standards in meeting congressional intent. Available from U.C. Davis Law Review, School of Law, Martin Luther King Jr. Hall, University of California, Davis, CA 95616. (Author/IRT)

20/7/26
EJ228183 HE513059
Facilities Management: A Program for the 1980s.
Kaiser, Harvey H.
New Directions for Higher Education, No. 30 (Managing Facilities More Effectively) v8 n2 p19-31 1980
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)
Successful facilities management is described as based on a 10-point comprehensive program including: (1) physical planning policy; (2) facilities analysis; (3) management audit; (4) space utilization; (5) capital programs; (6) deferred maintenance; (7) controlled maintenance; (8) energy conservation; (9) environmental quality, health, and safety; and (10) handicapped accessibility. (Author/MLW)

20/7/27
EJ227862 EA513165
Conservation Report Card.
Kohler, Lewis T.
American School and University, v52 n11 p26-27 Jul 1980
Language: English
Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)
Details from an "American School and University" survey of general and specific energy conservation measures that work. (Author/MLF)

20/7/36
EJ217695 EA512501
Energy Conservation and Education Facilities.
Day, C. William
School Business Affairs, v46 n3 p28,35 Mar 1980
Available from: Reprint: UMI
Language: English
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055)
The first logical step in school energy conservation is a review of annual operation and maintenance procedures to identify cost-saving opportunities. (Author/MLF)

20/7/41
EJ213754 AA530436
Energy Conservation--A Big Payoff.
Weinerman, Robert A.
Independent School, v39 n2 p13-14 Dec 1979
Available from: Reprint: UMI
Language: ENGLISH
Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141); NON-CLASSROOM MATERIAL (055)
The author explains how, by investing $250,000 in a five-year program of insulation and heating system improvement, Loomis Chaffee School has reduced its yearly fuel consumption from 16,000 to 9,000 barrels of oil. (SJL)

20/7/44
EJ212386 EA512183
Haverford: A Lesson in Energy Conservation.
American School and University, v52 n4 p28-29 Dec 1979
Language: ENGLISH
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055)
A $2.3 million renovation that concentrated on mechanical systems and windows helped cut fuel consumption 30 percent at a Pennsylvania junior high school. One of the objectives of the project was the creation of three separate minischools for the three grade levels assigned to the facility. (Author/MLF)

20/7/45
EJ209476 EA511843
New Facility Challenges = New Creative Solutions.
Porter, Kal
CEFP Journal, v17 n4 p15,17-18,21 Jul-Aug 1979
Available from: Reprint: UMI
Language: ENGLISH
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055)
It is essential that those involved in planning understand the major impacts that increasing agency regulations and growing educational expectations are having on both existing and new educational facilities. Creative professional services are available to assist districts in understanding options. (Author/MLF)

20/7/46
EJ209475 EA511842
Energy Efficiency in School Renovation--Hand Middle School Shows How.
CEFP Journal, v17 n4 p11-14 Jul-Aug 1979
Available from: Reprint: UMI
Language: ENGLISH
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055); PROJECT DESCRIPTION (141)

Hand Middle School, Columbia, South Carolina, provides an example of what may be the extreme in making an old school building maximally energy efficient. (Author)

20/7/50
EJ206345 EA511597
New Directions in School Design.
Brubaker, C. William
American School Board Journal, v166 n8 p43-45 Aug 1979
Available from: Reprint: UMI
Language: ENGLISH
Document Type: JOURNAL ARTICLE (080); AUDIOVISUAL MATERIAL (100)
Presents drawings of three buildings to show ways of designing for energy conservation, accommodation of the handicapped, and the conversion of surplus schools to other uses. (IRT)

APPENDIX J

PERSONS CONTACTED DURING STUDY

ZONE 1

PEACE RIVER SCHOOL DIVISION NO. 10

Mr. Barry Warne, Support Operations Manager
Mr. Stan Paulson, Curriculum Development
Mr. Dave Van Tamelen, Secretary-Treasurer
Ms. Doreen Sisson, Board Member

BROWNVALE SCHOOL

Mr. Pete Osowetski, Custodian

GRIMSHAW JUNIOR/SENIOR HIGH SCHOOL

Mr. Victor Ploc, Principal
Mr. John Westra, Custodian

KENNEDY ELEMENTARY SCHOOL

Mr. Marvin Wiedrick, Principal
Mr. Jim Scott, Custodian

LLOYD GARRISON SCHOOL — BERWYN

Mr. Rob Jones, Principal
Ms. Anna Stang, Custodian

FAIRVIEW SCHOOL DIVISION NO. 50

Ms. Joyce Light, Secretary-Treasurer
Mr. Harley Stauffer, Maintenance Supervisor
Mr. Neil Renneberg, Assistant Superintendent
Mr. Cliff Paul, Chairman of the Board

WHITELAW SCHOOL

Mr. Lionel Brideson, Principal
Mrs. Ivy French, Custodian

FAIRVIEW HIGH SCHOOL

Mr. Greg Woronuk, Principal

E.E. OLIVER ELEMENTARY SCHOOL

Mr. Robin Webster, Principal
Mr. Sully Paul, Custodian

HINES CREEK HIGH SCHOOL

Mr. Steve Lubick, Principal
Mrs. Frykas, Custodian

GRACE SHEPHERD ELEMENTARY SCHOOL

Mr. Taher Rampuri, Principal
Mrs. Emma Brauer, Custodian

ST. THOMAS MORE ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 35

Mr. Norm Blaskovits, Superintendent
Mr. Cliff Wagner, Secretary-Treasurer

ST. THOMAS MORE SCHOOL

Mr. Dean Rook, Principal
Mr. Ben Dart, Vice Principal
Mr. Al Pfoh, Custodian

ZONE 2

LAKELAND PUBLIC SCHOOL DISTRICT NO. 5460

Mr. Gary Kiernan, Superintendent
Mr. Charles Gault, Secretary-Treasurer
Mr. Barry Kissell, Facilities Planner

ARDMORE SCHOOL

Mr. Richard Jalbert, Principal
Mr. John Perepelecta, Custodian

COLD LAKE PUBLIC SCHOOL

Mr. Richard Welsh, Principal
Mr. Peter Penner, Custodian
Mr. Bryan Dropko, Science Teacher

DUCLOS SCHOOL

Mr. Ed Wittchen, Principal
Ms. Kim Reimer, Teacher
Mr. Castillo, Custodian

FORT KENT SCHOOL

Mr. Walter Ogrodiuk, Principal
Mr. Allan Fotty, Teacher
Mr. Shayka, Custodian

GLENDON SCHOOL

Mr. Bruce Percevault, Principal
Ms. Thelma Watrich, Teacher
Mr. James Mylnachuk, Custodian

GRAND CENTRE ELEMENTARY SCHOOL

Mr. Jack White, Principal
Mr. Chuck Thompson, Teacher
Mr. Mike Crowley, Custodian

GRAND CENTRE JUNIOR HIGH SCHOOL

Mr. Tom Varughese, Principal
Mr. August Zimmer, Custodian

GRAND CENTRE SENIOR HIGH SCHOOL

Mr. Rod Soholt, Principal
Mr. Marcel Bergeron, Custodian

IRON RIVER SCHOOL

Mr. Barry Wowk, Principal
Ms. Sharon Fersovitch, Teacher
Mr. Mike Hawrylak, Custodian

LAKELAND ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 150

Mr. Beaudoin, Superintendent
Mr. Grant Burge, Secretary-Treasurer

ECOLE NOTRE DAME JUNIOR HIGH SCHOOL

Mr. Paul Dolynny, Principal
Mr. P. Diel, Custodian

NOTRE DAME ELEMENTARY SCHOOL

Mrs. Doris LaPointe, Principal
Mr. M. Plouffe, Custodian

ZONE 3

EDMONTON ROMAN CATHOLIC SEPARATE SCHOOL DISTRICT NO. 7

Mr. Joe Smith, Mechanical Maintenance Supt.

AUSTIN O'BRIAN HIGH SCHOOL

Mr. Ray Campbell, Principal
Mr. Peter Noselski, Custodian
Mr. Steve Leigh, Teacher

FATHER LACOMBE SCHOOL

Mr. E. Pawluski, Principal
Mr. George Stang, Custodian

ST. ALPHONSUS SCHOOL

Mr. George Dunnigan, Principal
Mr. Pagacz, Custodian

ST. ANDREW SCHOOL

Mrs. Lenore Hopchin, Principal

ST. AUGUSTINE SCHOOL

Mr. Gary Buchanan, Principal
Mr. Saretski, Custodian

ST. BASIL SCHOOL

Mr. Bob Steele, Vice Principal
Mr. Stan Slinko, Custodian
Mr. P. Cornaccia, Teacher

ST. BONIFACE SCHOOL

Mr. Ronald Semkow, Principal
Mr. Leo Schamber, Custodian

ST. CLARE SCHOOL

Mr. Maynard McKeown, Principal
Mr. W. Williamson, Teacher

ST. DOMINIC SCHOOL

Mr. Louis Birrassi, Principal
Mr. Mario Ninassi, Custodian

ZONE 4

DIVISION

ROCKY VIEW SCHOOL DISTRICT NO. 41

Mr. Ed Kettner, Maintenance Supervisor
Mr. Don Vizina, Secretary-Treasurer
Mr. Don Stuart, Assistant Supervisor of Custodians
Mr. Jim Rennie, Assistant Superintendent — Curriculum
Mr. John Znider, Assistant Supervisor -- Personnel

GEORGE MCDOUGALL HIGH SCHOOL

Mr. E. L. Mascherin, Principal
Mr. Grant Rimtoul, Custodian

BEISEKER SCHOOL

Mr. T. Miller, Principal
Mr. Gilns, Custodian

CHESTERMERE JUNIOR/SENIOR HIGH SCHOOL

Mr. Barry Gore, Acting Principal
Mr. Laurence Head, Teacher
Mrs. Locke, Custodian

COCHRANE HIGH SCHOOL

Mr. Alf E. Gould, Principal
Mr. Dave Connors, Custodian

ANDREW SIBBALD ELEMENTARY SCHOOL

Mrs. J. Pokrandt, Acting Principal

CONRICH SCHOOL

Mr. A. Bruce Davey, Prinicipal
Mr. Mansini, Custodian

SPRINGBANK JUNIOR HIGH SCHOOL

Mr. Jay J. Bartsch, Principal
Mr. Paul Sutcliffe, Teacher
Mr. Pepper, Custodian

ELBOW VALLEY ELEMENTARY SCHOOL

Mr. T. Hazton, Principal
Mr. Percy Switzer, Custodian

EDWARDS ELEMENTARY SCHOOL

Mr. William Bell, Principal
Ms. Marilyn Dahl, Teacher

SPRINGBACK COMMUNITY HIGH SCHOOL

Mr. Jim Weed, Principal
Mr. Roger Canliff, Custodian

ELIZABETH BARRETT ELEMENTARY SCHOOL

Mr. Jack Tilbrooks, Principal
Mr. Gordon Elson, Vice Principal

ZONE 5

MEDICINE HAT SCHOOL DISTRICT NO. 76

Dr. Ken Sauer, Superintendent
Mr. Eric Murray, Secretary-Treasurer
Mr. Doug Pudwell, Deputy Secretary-Treasurer & Energy Committee Chairman
Mr. Bill Turko, Director of Curriculum
Dr. Al Anderson, Science Consultant
Mr. Bruno Schrier, Maintenance Supervisor
Mr. Wally Betker, Custodial Supervisor

ALEXANDRA JUNIOR HIGH SCHOOL

Mr. G. Moore, Principal
Mr. John Thompson, Head Custodian

CONNAUGHT ELEMENTARY SCHOOL

Mr. G. Diebert, Principal
Mr. Almond, Vice Principal
Mr. Frank Pryce, Custodian

CRESCENT HEIGHTS JUNIOR/SENIOR HIGH SCHOOL

Mr. D. Rempel, Principal
Mr. G. Smith, Vice Principal
Mr. Dave Gue, Science Teacher
Mr. David Luyten, Science Teacher
Mr. Morrey, Librarian
Mr. Marvin Lattery, Custodian

CRESTWOOD ELEMENTARY SCHOOL

Mr. D. R. Pound, Principal
Mr. Tetz, Custodian

ELM STREET ELEMENTARY SCHOOL

Mr. G. Kelly, Principal
Mr. G. Gower, Custodian

HERALD ELEMENTARY SCHOOL

Mr. Rod E. Sommerfeld, Principal

MONTREAL STREET ELEMENTARY SCHOOL

Mr. W. Wikjord, Principal

RIVER HEIGHTS ELEMENTARY SCHOOL

Mr. B. D. Shave, Principal
Mr. H. Sparrow, Custodian

VINCENT MASSEY ELEMENTARY SCHOOL

Mr. Bill Rae, Vice Principal
Mr. Giesinger, Custodian

WEBSTER NIBLOCK ELEMENTARY SCHOOL

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INFORMATION AND BIBLIOGRAPHIC SOURCES

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Mr. Bill Schoeman -- Assistant Deputy Minister, Yukon Department of Education

Mr. Irving Brunace, Saskatchewan Department of Education, Facilities Planning

Mr. Glen Sprague, B.C. Department of Education, School Finance and Facilities Division

Mr. Fred Heal, Director -- Saskatchewan Department of Mineral Resources Energy Conservation Branch

Mr. Les Fawcett, Superintendent of Schools, Weyburn Separate School Board

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Mr. Gary Popowich, Associate Director, Math and Science -- Alberta Education

Mr. Frank Crowther, Associate Director, Social Studies -- Alberta Education

STEERING COMMITTEE

Mr. W. Leigh Hill/Mr. Ray LaFleur — Co-Chairmen

Dr. Warren Hathaway

Mr. Dana Sundmark

Mr. Dan Stoker — Alberta Energy and Natural Resources

Mr. Bill Ede

ZONE ENERGY CONSULTANTS

ZONE 1	Mr. Chris Peter
ZONE 2	Mr. Phil Cox
ZONE 3	Mr. Joe Santos
ZONE 4	Mr. Jeff Bannard
ZONE 5	Mr. Andy Christie

BUILDING QUALITY RESTORATION PROGRAM
ENERGY CONSERVATION PROJECTS

CONTACT LIST

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Mr. Chuck Oullette	Secretary-Treasurer	St. Paul School District #2228
Mr. Dave Lashuck	Secretary-Treasurer	St. Paul Regional High School District #1 Glen Avon Protestant Separate School District #5
Mr. Rienholt	Superintendent	County of Beaver School Board #9
Mr. Bancroft	Secretary-Treasurer	County of Beaver School Board #9
Ms. Carling Belik	Secretary-Treasurer	Fort McMurray Roman Catholic Separate District #32
Mr. G. Heck	Superintendent	Fort McMurray Roman Catholic Separate District #32